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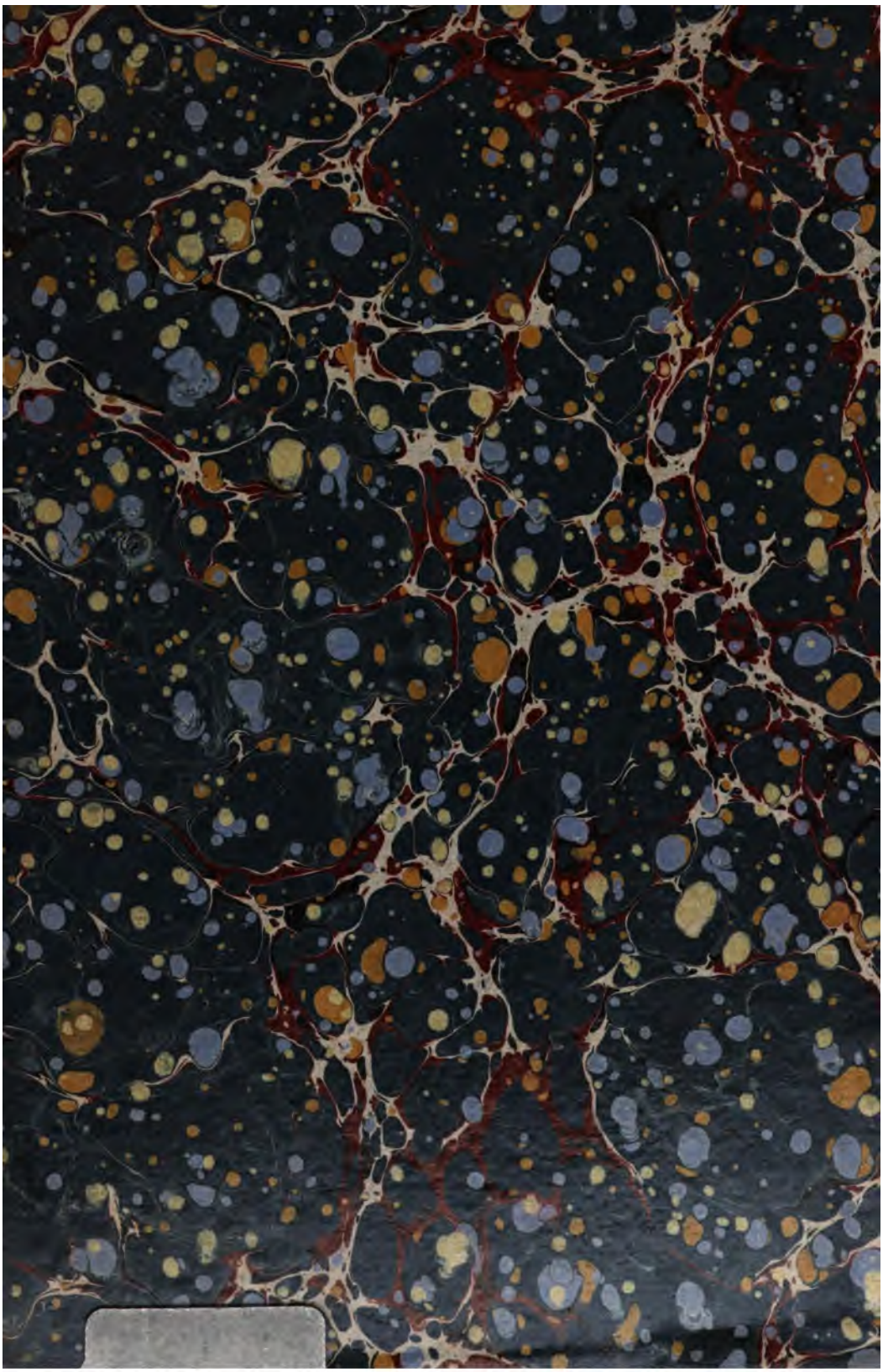

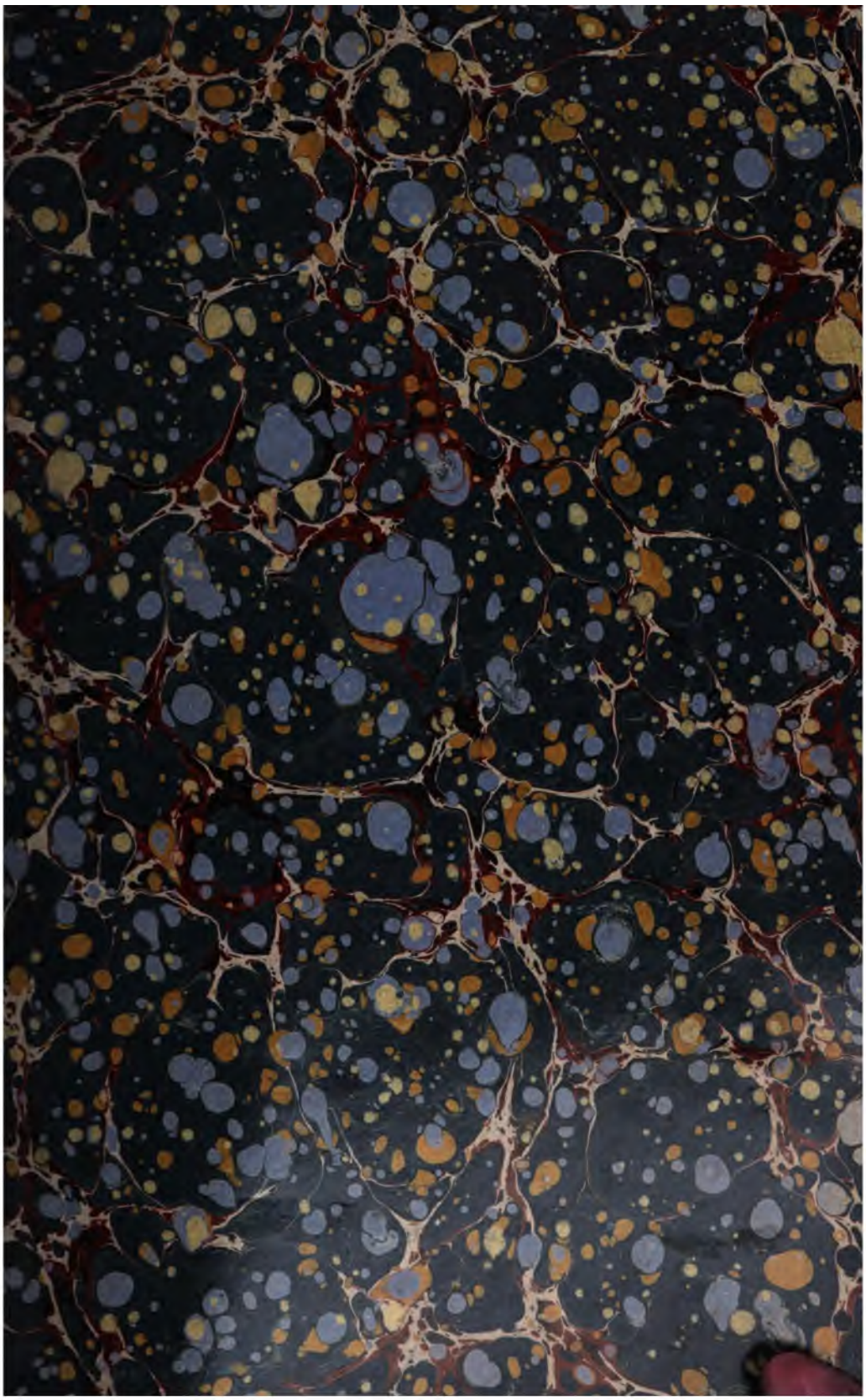

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VOLUME IX

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THE MONIST

ON THE FOUNDATIONS OF GEOMETRY.[1]

ALTHOUGH I have already had occasion to set forth my views on the foundations of geometry,[1] it will not, perhaps, be unprofitable to revert to the question with new and ampler developments, and seek to clear up certain points which the reader may have found obscure. It is with reference to the definition of the point and the determination of the number of dimensions that new light appears to me most needed; but I deem it opportune, nevertheless, to take up the question from the beginning.

SENSIBLE SPACE.

Our sensations cannot give us the notion of space. That notion is built up by the mind from elements which pre-exist in it, and external experience is simply the occasion for its exercising this power, or at most a means of determining the best mode of exercising it.

Sensations by themselves have no spatial character.

This is evident in the case of isolated sensations—for example, visual sensations. What could a man see who possessed but a single immovable eye? Different images would be cast upon different points of his retina, but would he be led to classify these images as we do our present retinal sensations?

---

[1] Translated from Professor Poincaré's MS. by T. J. McCormack.

[2] Both in the *Revue Générale des Sciences* and in the *Revue de Métaphysique et de Morale.*

Suppose images formed at four points *A*, *B*, *C*, *D* of this immovable retina. What ground would the possessor of this retina have for saying that, for example, the distance *AB* was equal to the distance *CD*? We, constituted as we are, have a reason for saying so, because we know that a *slight* movement of the eye is sufficient to bring the image which was at *A* to *C*, and the image which was at *B* to *D*. But these slight movements of the eye are impossible for our hypothetical man, and if we should ask him whether the distance *AB* was equal to the distance *CD*, we should seem to him as ridiculous as would a person appear to us who should ask us whether there was more difference between an olfactory sensation and a visual sensation than between an auditive sensation and a tactual sensation.

But this is not all. Suppose that two points *A* and *B* are very near to each other, and that the distance *AC* is very great. Would our hypothetical man be cognisant of the difference? We perceive it, we who can move our eyes, because a very slight movement is sufficient to cause an image to pass from *A* to *B*. But for him the question whether the distance *AB* was very small as compared with the distance *AC* would not only be insoluble, but would be devoid of meaning.

The notion of the contiguity of two points, accordingly, would not exist for our hypothetical man. The rubric, or category, under which he would arrange his sensations, if he arranged them at all, would consequently not be the space of the geometer and would probably not even be continuous, since he could not distinguish small distances from large. And even if it were continuous, it could not, as I have abundantly shown elsewhere, be either homogeneous, isotropic, or tridimensional.

It is needless to repeat for the other senses what I have said for sight. Our sensations differ from one another qualitatively, and they can therefore have no common measure, no more than can the gramme and the metre. Even if we compare only the sensations furnished by the same nerve-fibre, considerable effort of the mind is required to recognise that the sensation of to-day is of the same kind as the sensation of yesterday, but greater or

smaller; in other words, to classify sensations according to their character, and then to arrange those of the same kind in a sort of scale, according to their intensity. Such a classification cannot be accomplished without the active intervention of the mind, and it is the object of this intervention to refer our sensations to a sort of rubric or category pre-existing in us.

Is this category to be regarded as a "form of our sensibility"? No, not in the sense that our sensations, individually considered, could not exist without it. It becomes necessary to us only for comparing our sensations, for reasoning upon our sensations. It is therefore rather a form of our understanding.

This, then, is the first category to which our sensations are referred. It can be represented as composed of a large number of scales absolutely independent of one another. Further, it simply enables us to compare sensations of the same kind and not to measure them, to perceive that one sensation is greater than another sensation, but not that it is twice as great or three times as great.

How much such a category differs from the space of the geometer! Shall we say that the geometer admits a category of quite the same kind, where he employs three scales such as the three axes of co-ordinates? But in our category we have not three scales only, but as many as there are nerve-fibres. Further, our scales appear to us as so many separate worlds fundamentally distinct, while the three axes of geometry all fulfil the same office and may be interchanged one for another. In fine, the co-ordinates are susceptible of being measured and not simply of being compared. Let us see, therefore, how we can rise from this rough category which we may call sensible space to geometric space.

THE FEELING OF DIRECTION.

It is frequently said that certain of our sensations are always accompanied by a peculiar feeling of direction, which gives to them a geometrical character. Such are visual and muscular sensations. Others on the contrary like the sensations of smell and taste are not accompanied by this feeling, and consequently are void of any geometrical character whatever. On this theory the

notion of direction would be pre-existent to all visual and muscular sensations and would be the underlying condition of the same.

I am not of this opinion; and let us first ask if the feeling of direction really forms a constituent part of the sensation. I cannot very well see how there can be anything else *in* the sensation than the sensation itself. And be it further observed that the same sensation may, according to circumstances, excite the feeling of different directions. Whatever be the position of the body, the contraction of the *same* muscle, the biceps of the right arm, for example, will always provoke the *same* muscular sensation; and yet, through being apprised by other concomitant sensations that the position of the body has changed, we also know perfectly well that the direction of the motion has changed.

The feeling of direction, accordingly, is not an integrant part of the sensation, since it can vary without the sensation being varied. All that we can say is that the feeling of direction is associated with certain sensations. But what does this signify? Do we mean by it that the sensation is associated with a certain indescribable something which we can represent to ourselves but which is still not a sensation? No, we mean simply that the various sensations which correspond to the same direction are associated *with one another*, and that one of them calls forth the others in obedience to the ordinary laws of association of ideas. Every association of ideas is a product of habit merely, and it would be necessary for us to discover how the habit was formed.

But we are still far from geometrical space. Our sensations have been classified in a new manner: those which correspond to the same direction are grouped together; those which are isolated and have reference to no direction are not considered. Of the innumerable scales of sensations of which our sensible space was formed some have disappeared, others have been merged into one another. Their number has been diminished.

But the new classification is still not space; it involves no idea of measurement; and, furthermore, the restricted category so reached would not be an isotropic space, that is to say, different directions would not appear to us as fulfilling the same office and

as interchangeable with one another. And so this "feeling of direction" far from explaining space would itself stand in need of explanation.

But will it help us even towards the explanation we seek? No, because the laws of that association of ideas which we call the feeling of direction are extraordinarily complex. As I explained above, the same muscular sensation may correspond to a host of different directions according to the position of the body which is made known to us by other concomitant sensations. Associations so complex can only be the result of an extremely long process. This, therefore, is not the path which will lead us most quickly to our goal. Therefore we will not regard the feeling of direction as something attained but will revert to the "sensible space" with which we started.

REPRESENTATION OF SPACE.

Sensible space has nothing in common with geometrical space. I believe that few persons will be disposed to contest this assertion. It would be possible, perhaps, to refine the category which I set up at the beginning of this article, and to construct something which would more resemble geometrical space. But whatever concession we might make, the space so constructed would be neither infinite, homogeneous, nor isotropic: it could be such only by ceasing to be accessible to our senses.

Seeing that our representations are simply the reproductions of our sensations, therefore we cannot image geometrical space. We cannot represent to ourselves objects in geometrical space, but can merely reason upon them as if they existed in that space.

A painter will struggle in vain to construct an object of three dimensions upon canvas. The image which he traces, like his canvas, will never have more than two. When we endeavor, for example, to represent the sun and the planets in space, the best we can do is to represent the visual sensations which we experience when five or six tiny spheres are set revolving in close proximity.

Geometrical space, therefore, cannot serve as a category for

our representations. It is not a form of our sensibility. It can serve us only in our reasonings. It is a form of our understanding.

DISPLACEMENT AND ALTERATION.

We at once perceive that our sensations vary, that our impressions are subject to change. The laws of these variations were the cause of our creating geometry and the notion of geometrical space. If our sensations were not variable, there would be no geometry.

But that is not all. Geometry could not have arisen unless we had been led to distribute into two classes the changes which can arise in our impressions. We say, in one case, that our impressions have changed because the objects causing them have undergone some alterations of character, and again that these impressions have changed because the objects have suffered displacement. What is the foundation of this distinction?

A sphere of which one hemisphere is blue and the other red, is rotating before our eyes and shows first a blue hemisphere and then a red hemisphere. Again, a blue liquid contained in a vase suffers a chemical reaction which causes it to turn red. In both cases the impression of blue has given way to the impression of red. Now why is the first of these changes classed among displacements, and the second among alterations? Evidently because in the first case it is sufficient for me merely to go around the globe to bring myself face to face again with the other hemisphere, and so to receive a second time the impression of blue.

An object is displaced before my eye, and its image which was first formed on the centre of the retina is now brought to the edge of the retina. The sensation which was carried to me by a nerve-fibre proceeding from the centre of the retina is succeeded by another which is carried to me by a fibre proceeding from the edge. These sensations are conducted to me by two different nerves. They ought to appear to me different in character, and if they did not, how could I distinguish them?

Why, then, do I come to conclude that the *same* image has been displaced? Is it because one of these sensations frequently

succeeds the other? But similar successions are frequent. These it is that produce all our associations of ideas, and we do not ordinarily conclude that they are due to displacement of an object which is invariable in character.

But what happens in this case is that we can *follow the object with the eye*, and by a displacement of our eye which is generally voluntary and accompanied by muscular sensations, we can bring the image back to the centre of the retina and so *re-establish the primitive sensation.* The following, therefore, is my conclusion.

Among the changes which our impressions undergo, we distinguish two classes:

(1) The first are independent of our will and not accompanied by muscular sensations. These are *external changes* so called.

(2) The others are voluntary and accompanied by muscular sensations. We may call these *internal changes.*

We observe next that in certain cases when an external change has modified our impressions, we can, by voluntarily provoking an internal change, re-establish our primitive impressions. The external change, accordingly, can be *corrected* by an internal change. External changes may consequently be subdivided into the two following classes:

1. Changes which are susceptible of being corrected by an internal change. These are *displacements.*

2. Changes which are not so susceptible. These are *alterations.*

An immovable being would be incapable of making this distinction. *Such a being, therefore, could never create geometry,*—even if his sensations were variable, and even if the objects surrounding him were movable.

CLASSIFICATION OF DISPLACEMENTS.

A sphere of which one hemisphere is blue and the other red, is rotating before me and presents to me first its blue side and then its red side. I regard this external change as a displacement because I can correct it by an internal change, namely, by going around the sphere. Let us repeat the experiment with another sphere, of which one hemisphere is green and the other yellow.

The impression of the yellow hemisphere will succeed that of the green, as before that of the red succeeded that of the blue. For the same reason I shall regard this new external change as a displacement.

But this is not all. I also say that these two external changes are due to the *same* displacement, that is to say, to a rotation. Yet there is no connexion between the impression of the yellow hemisphere and that of the red, any more than there is between that of the blue and that of the green, and I have no reason for saying that the same relation exists between the yellow and the green as exists between the red and the blue. No, I say that these two external changes are due to the same displacement because I have "corrected" them by the same internal change. But how am I to know that the two internal changes by which I corrected first the external change from the blue to the red, then that from the green to the yellow, are to be considered identical? Simply because they have provoked the *same* muscular sensations; and for this it is not necessary for me to know geometry in advance and to represent to myself the movements of my body in geometric space.

Thus several external changes which in themselves have no common relation may be corrected by the same internal change. I collect these into the same class and consider them as the same displacement.

An analogous classification may be made with respect to internal changes. All internal changes are not capable of correcting an external change. Only those which are may be called displacements. On the other hand the same external change may be corrected by several different internal changes. A person knowing geometry might express this idea by saying that my body can go from the position A to the position B by several different paths. Each of these paths corresponds to a series of muscular sensations; and at present I am cognisant of nothing but these muscular sensations. No two of these series have a common resemblance, and if I consider them nevertheless as representing the *same* displacement, it is because they are capable of correcting the same external change.

The foregoing classification suggests two reflexions:

1. The classification is not a crude datum of experience, because the aforementioned compensation of the two changes, the one internal and the other external, is never exactly realised. It is, therefore, an active operation of the mind, which endeavors to insert the crude results of experience into a pre-existing form, into a category. This operation consists in identifying two changes because they possess a common character, and in spite of their not possessing it exactly. Nevertheless, the very fact of the mind's having occasion to perform this operation is due to experience, for experience alone can teach it that the compensation has approximately been effected.

2. The classification further brings us to recognise that two displacements are identical, and it hence results that a displacement can be *repeated* twice or several times. It is this circumstance that introduces number, and that permits measurement where formerly pure quality alone held sway.

INTRODUCTION OF THE NOTION OF GROUP.

That we are able to go farther is due to the following fact, the importance of which is cardinal.

It is obvious that if we consider a change A, and cause it to be followed by another change B, we are at liberty to regard the *ensemble* of the two changes A followed by B as a single change which may be written $A + B$ and may be called the resultant change. (It goes without saying that $A + B$ is not necessarily identical with $B + A$.) The conclusion is then stated that if the two changes A and B are displacements, the change $A + B$ also is a displacement. Mathematicians express this by saying that *the ensemble, or aggregate, of displacements is a group.* If such were not the case there would be no geometry.

But how do we know that the *ensemble* of displacements is a group? Is it by reasoning *a priori?* Is it by experience? One is tempted to reason *a priori* and to say: if the external change A is corrected by the internal change A', and the external change B by the internal change B', the resulting external change $A + B$ will be

corrected by the resulting internal change $B'+A'$. Hence this resulting change is by definition a displacement, which is to say that the *ensemble* of displacements forms a group.

But this reasoning is open to several objections. It is obvious that the changes A and A' compensate each other; that is to say, that if these two changes are made in succession, I shall find again my original impressions,—a result which I might write as follows:

$$A+A'=0.$$

I also see that $B+B'=0$. These are hypotheses which I made at the outset and which served me in defining the changes A, A', B, and B'. But is it certain that we shall still have $B+B'=0$,—*after* the two changes A and A'? Is it certain that these two changes compensate in such a manner that not only shall I recover my original impressions, but that the changes B and B' shall recover all their original properties, and in particular that of mutual compensation? If we admit this, we may conclude from it that I shall recover my primitive impressions when the four changes follow in the order

$$A,\ A',\ B,\ B';$$

but not that the same will still be the case when they succeed in the order

$$A,\ B,\ B',\ A'.$$

Nor is this all. If two external changes α and α' are regarded as identical on the basis of the convention adopted above, or in other words, are susceptible of being corrected by the same internal change A; if, on the other hand, two other external changes β and β' can be corrected by the same internal change B, and consequently may also be regarded as identical, have we the right to conclude that the two changes $\alpha+\beta$ and $\alpha'+\beta'$ are susceptible of being corrected by the same internal change, and are consequently identical? Such a proposition is in no wise evident, and if it be true it cannot be the result of *a priori* reasoning.

Accordingly, this set of propositions, which I recapitulate by saying that displacements form a group, is not given us by *a priori* reasoning. Are they then a result of experience? One is inclined to admit that they are; and yet one has a feeling of real misgiving

in so doing. May not more precise experience prove some day that the law above enunciated is only approximate? What, then, will become of geometry?

But we may rest assured on this point. Geometry is safe from all revision; no experience, however precise, can overthrow it. If it could have done it, it would have done so long ago. We have long known that all the so-called experimental laws are approximations, and rough approximations at that.

What, then, is to be done? When experience teaches us that a certain phenomenon does not correspond *at all* to these laws, we strike it from the list of displacements. When it teaches us that a certain change obeys them *only approximately*, we consider the change, *by an artificial convention*, as the resultant of two other component changes. The first component is regarded as a displacement *rigorously* satisfying the laws of which I have just spoken, while the second component, which is small, is regarded as a qualitative alteration. Thus we say that natural solids undergo not only great changes of position but also small flexions and small thermal dilatations.

By an external change α we pass, for example, from the *ensemble* of impressions A to the *ensemble* B. We correct this change by a voluntary internal change β and are carried back to the *ensemble* A. A new external change α' causes us to pass again from the *ensemble* A to the *ensemble* B. We ought to expect then that this change α' could in its turn be corrected by another voluntary internal change β' which would provoke the same muscular sensations as β and which would call forth again the *ensemble* of impressions A. If experience does not confirm this prediction, we shall not be embarrassed. We say that the change α', although like α it has been the cause of my passing from the *ensemble* A to the *ensemble* B, is nevertheless not identical with the change α. If our prediction is confirmed only approximately we say that the change α' is a displacement identical with the displacement α but accompanied by a slight qualitative alteration.

In fine, these laws are not imposed by nature upon us but are imposed by us upon nature. But if we impose them upon nature,

it is because she suffers us to do so. If she offered too much resistance, we should seek in our arsenal for another form which would be more acceptable to her.

CONSEQUENCES OF THE EXISTENCE OF THE GROUP.

This first fact, that displacements form a group, contains in germ a host of important consequences. Space must be homogeneous; that is, all its points are capable of playing the same part. Space must be isotropic; that is, all directions which issue from the same point must play the same part.

If a displacement D transports me from one point to another, or changes my orientation, I must after such displacement D be still capable of the same movements as before the displacement D, and these movements must have preserved their fundamental properties, which permitted me to classify them among displacements. If it were not so, the displacement D followed by another displacement would not be equivalent to a third displacement; in other words, displacements would not form a group.

Thus the new point to which I have been transported plays the same part as that at which I was originally; my new orientation also plays the same part as the old; space is homogeneous and isotropic.

Being homogeneous, it will be unlimited; for a category that is limited cannot be homogeneous, seeing that the boundaries cannot play the same part as the centre. But this does not say that it is infinite; for the sphere is an unbounded surface, and yet it is finite. All these consequences, accordingly, are germinally contained in the fact which we have just discovered. But we are as yet unable to perceive them, because we do not yet know what a direction is or even what a point is.

PROPERTIES OF THE GROUP.

We have now to study the properties of the group. These properties are purely formal. They are independent of any quality whatever, and in particular of the qualitative character of the phenomena which constitute the change to which we have given the

name displacement. We remarked above that we could regard two changes as representing the same displacement, although the phenomena were quite different in qualitative nature. The properties of this displacement remain the same in the two cases; or rather the only ones which concern us, the only ones which are susceptible of being studied mathematically, are those in which quality is in no wise concerned. A brief digression is necessary here to render my thought comprehensible. What mathematicians call a group is the *ensemble* of a certain number of operations and of all the combinations which can be made of them. In the group which is occupying us our operations are displacements. It sometimes happens that two groups contain operations which are entirely different as to character, and that these operations nevertheless combine according to the same laws. We then say that the two groups are *isomorphic*.

The different permutations of six objects form a group and the properties of this group are independent of the character of the objects. If in place of the six material objects we take six letters, or even the six faces of a cube, we obtain groups which differ as to their component materials, but which are all isomorphic with one another.

The formal properties are those which are common to all isomorphic groups. If I say, for example, that such and such an operation repeated three times is equivalent to such and such an other repeated four times, I have announced a formal property entirely independent of quality. These formal properties are susceptible of being studied mathematically. They should be enunciated, therefore, in *precise* propositions. On the other hand, the experiences which serve to verify them can never be more than approximate; that is to say, the experiences in question can never be the true foundation of these propositions. We have within us, in a potential form, a certain number of models of groups, and experience merely assists us in discovering which of these models departs least from reality.

CONTINUITY.

It is observed first that the group is *continuous*. Let us see what this means, and how the fact can be established.

The same displacement can be repeated twice, three times, etc. We obtain thus different displacements which may be regarded as *multiples* of the first. The multiples of the same displacement D form a group; for the succession of two of these multiples is still a multiple of D. Further, all these multiples are interchangeable (a truth which is expressed by saying that the group which they form is a *sheaf*); that is, it is indifferent whether we repeat D first three times and then four times, or first four times and then three times. This is an analytical judgment *a priori;* an out-and-out tautology. This group of the multiples of D is only a part of the total group. It is what is called a *sub-group*.

Now we soon discover that any displacement whatever can always be divided into two, three, or any number of parts whatever; I mean that we can always find an other displacement which, repeated two, three times will reproduce the given displacement. This divisibility to infinity conducts us naturally to the notion of mathematical continuity; yet things are not so simple as they appear at first sight.

We cannot prove this divisibility to infinity, directly. When a displacement is very small, it is inappreciable for us. When two displacements differ very little, we cannot distinguish them. If a displacement D is extremely small, its consecutive multiples will be indistinguishable. It may happen then that we cannot distinguish $9D$ from $10D$, nor $10D$ from $11D$, but that we can nevertheless distinguish $9D$ from $11D$. If we wanted to translate these crude facts of experience into a formula, we should write

$$9D=10D,\ 10D=11D,\ 9D<11D.$$

Such would be the formula of physical continuity. But such a formula is repugnant to reason. It corresponds to none of the models which we carry about in us. We escape the dilemma by an artifice; and for this physical continuity—or, if you prefer, for

this sensible continuity, which is presented in a form unacceptable to our minds—we substitute mathematical continuity. Severing our sensations from that something which we call their cause, we assume that the something in question conforms to the model which we carry about in us, and that our sensations deviate from it only in consequence of their crudeness.

The same process recurs every time we apply measurement to the data of the senses; it is notably applicable to the study of displacements. From the point which we have now reached, we can render an account of our sensations in several different ways.

(1) We may suppose that each displacement forms part of a sheaf formed of all the multiples of a certain small displacement far too small to be appreciated by us. We should then have a discontinuous sheaf which would give us the illusion of physical continuity because our gross senses would be unable to distinguish any two consecutive elements of the sheaf.

(2) We may suppose that each displacement forms part of a more complex and richer sheaf. All the displacements of which this sheaf is composed would be interchangeable. Any two of them would be multiples of another smaller displacement which likewise formed part of the sheaf and which might be regarded as their greatest common divisor. Finally, any displacement of the sheaf could be divided into two, three, or any number of parts, in the sense which I have given to this word above, and the divisor would still be part of the sheaf. The different displacements of the sheaf would be, so to speak, commensurable with one another. To every one of them would correspond a commensurable number, and *vice versa*. This therefore would be already a sort of mathematical continuity, but this continuity would still be imperfect, for there would be nothing corresponding to incommensurable numbers.

(3) We may suppose, finally, that our sheaf is perfectly continuous. All its displacements are interchangeable. To every commensurable or incommensurable number corresponds a displacement and *vice versa*. The displacement corresponding to the number na is nothing else than the displacement corresponding to the number a repeated n times.

Why has the last of these three solutions been adopted? The reasons for the choice are complicated.

(1) It has been established by experience that displacements which are sufficiently large can be divided by any number whatever; and as the means of measurement increased in precision, this divisibility was demonstrated for displacements much smaller, with respect to which it first seemed doubtful. We have thus been led by induction to suppose that this divisibility is a property of all displacements, however small, and consequently to reject the first solution and to decide in favor of divisibility to infinity.

(2) The first solution, like the second, is incompatible with the other properties of the group which we know from other experience. I shall explain this further on. The third solution, accordingly, is imposed upon us by this fact alone. The contrary might have happened. It might have been that the properties of the group were incompatible with continuity. Then we should undoubtedly have adopted the first solution.

SUB-GROUPS.

The most important of the formal properties of a group is the existence of sub-groups. It must not be supposed that there can be as many sub-groups formed as we like, and that it is sufficient to cut up a group in an arbitrary manner, as one would inert clay, in order to obtain a sub-group. If two displacements be taken at random in a group, it will be necessary, in order to form a sub-group from them, to conjoin with them all their combinations; and in the majority of cases it happens that in combining these two displacements in all possible manners we arrive ultimately at the primitive group again in its original intact form. It may happen thus that a group contains no sub-group.

But groups are distinguished from one another, in a formal point of view, by the number of sub-groups which they contain and by the mutual relations of the sub-groups. A superficial examination of the group of displacements renders it patent that it contains some sub-groups. A more minute examination will disclose them all. We shall see that among these sub-groups there are some that

are: (1) continuous, i. e., have all their displacements divisible to infinity; (2) discontinuous, i. e., have no displacements that are divisible to infinity; (3) mixed, i. e., have displacements divisible to infinity and in addition others that are not so divisible.

From another point of view we distinguish among our sub-groups sheaves whose displacements are all interchangeable and those which do not possess this property.

The following is another manner of classing displacements and sub-groups.

Let us consider two displacements D and D'. Let D'' be a third displacement, defined to be the resultant of the displacement D' followed by the displacement D followed itself by the inverse displacement of D'. This displacement D'' is called the *transformation* of D by D'.

From the formal point of view all the transformations of the same displacement are equivalent, so to speak; they play the same part; the Germans say that they are *gleichberechtigt*. Thus (if I may be permitted for an instant to use in advance the ordinary language of geometry which we are supposed not yet to know) two rotations of 60° are *gleichberechtigt*, two helicoidal displacements of the same step and same fraction of spiral are *gleichberechtigt*.

The transformations of all displacements of a sub-group g by the same displacement D' form a new sub-group which is called the transformation of the sub-group g by the displacement D'. The different transformations of the same sub-group, playing the same part in a formal point of view, are *gleichberechtigt*.

It happens generally that many of the transformations of the same sub-group are identical; it will sometimes even happen that all the transformations of a sub-group are identical with one another and with the primitive sub-group. It is then said this sub-group is *invariant* (which happens, for example, in the case of the sub-group formed of all translations). The existence of an invariant sub-group is a formal property of the highest importance.

ROTATIVE SUB-GROUPS.

The number of sub-groups is infinite; but they may be divided into a rather limited number of classes of which I do not wish to give here a complete enumeration. But these sub-groups are not all perceived with the same facility. Some among them have been only recently discovered. Their existence is not an intuitive truth. Unquestionably it can be deduced from the fundamental properties of the group, from properties which are known to everybody, and which are, so to speak, the common patrimony of all minds. Unquestionably it is contained there in germ; yet those who have demonstrated their existence have justly felt that they had made a discovery and have frequently been obliged to write long memoirs to reach their results.

Other sub-groups, on the contrary, are known to us in much more immediate manner. Without much reflexion every one believes he has a direct intuition of them, and the affirmation of their existence constitutes the axioms of Euclid. Why is it that some sub-groups have directly attracted attention, whilst others have eluded all research for a much longer time? We shall explain it by a few examples.

A solid body having a fixed point is turning before our eyes. Its image is depicted on our retina and each of the fibres of the optic nerve conveys to us an impression; but owing to the motion of the solid body this impression is variable. One of these fibres, however, conveys to us a constant impression. It is that at the extremity of which the image of the fixed point has been formed. We have, thus, a change which causes certain sensations to vary, but leaves others invariable. This is a property of the displacement, but at first blush it does not appear that it is a formal property. It seems to belong to the qualitative character of the sensations experienced. We shall see, however, that we can disengage a formal property from it, and to render my thought clear I shall compare what takes place in this case with what happens in another instance which is apparently analogous.

I suppose that a certain body is moving before my eyes in any manner, but that a certain region of this body is painted in a color sufficiently uniform to leave no shades discernible. Let us say it is red. If the movements are not of too great compass and if the red region is sufficiently large in extent, certain parts of the retina will remain constantly in the image of that region, certain nerve-fibres will convey to us constantly the impression of the red, the displacement will have left certain sensations invariable.

But there is an essential difference between the two cases. Let us go back to the first one. We witnessed there an external change in which certain sensations A did not change, whilst other sensations B did change. We are able to correct this external change by an internal change, and in this correction the sensations A still remain invariable.

But now here is a new solid body which is turning before our eyes and is experiencing the same rotations as the first. This is a new external change which may be different altogether from the first from a qualitative point of view, because the new body which is turning may be painted in new colors, or because we are apprised of its rotation by touch and not by sight. We discover, however, that it is the *same* displacement, because it can be corrected by the same internal change. And we also discover that certain sensations A' in this new external change (totally different perhaps from A) have remained invariable, whilst other sensations B' varied. Thus, this property of conserving certain sensations ultimately appears to us as a formal property independent of the qualitative character of these sensations.

We pass to the second example. We have, first, an external change in which a certain sensation C, a sensation of red, has remained constant. Let us suppose that another solid body, differently painted, undergoes the same displacement. Here is a new external change, and we know that it represents the same displacement because we can correct it by the same internal change. We discover generally that in this new external change certain sensations have not remained constant. Thus the conservation of the

sensation C will appear to us as an accidental property only, connected with the qualitative nature of the sensation.

We are thus led to distinguish among displacements those which conserve certain sensations. The *ensemble* of the displacements which thus conserve a given system of sensations, evidently forms a sub-group which we may call a *rotative sub-group*.

Such is the conclusion which we draw from experience. It is needless to point out how crude is the experience and how precise on the other hand is the conclusion. Therefore experience cannot impose the conclusion upon us, but it suffices to suggest it to us. It suffices to show that of all the groups of which the models preexist in us, the only ones which we can accept with a view of referring to them our sensations, are those which contain such a subgroup.

By the side of the rotative sub-group, we should consider its transformations, which also may be called rotative sub-groups. (Sub-group of rotations about a fixed point.) By new experiences, always very crude, it is then shown :

(1) That any two rotative sub-groups have common displacements.

(2) That these common displacements, all interchangeable among one another, form a sheaf, which may be called a rotative sheaf. (Rotations about a fixed axis.)

(3) That any rotative sheaf forms part not only of two rotative sub-groups, but of an infinity of them.

Here is the origin of the notion of the straight line, as the rotative sub-group was the origin of the notion of the point.

Let us now look at all the displacements of a rotative sheaf. If we look at any displacement whatever, it will not in general be interchangeable with all the displacements of the sheaf, but we shall discover very soon that there exist displacements which are interchangeable with all those of the rotative sheaf, and that they form a more extensive sub-group which may be called the helicoidal subgroup (combinations of rotations about an axis and of translations parallel to that axis). This will be evident when it is observed that a straight line can slide along itself.

Finally, we derive from the same crude observations such propositions as the following:

Any displacement sufficiently small and forming part of a given rotative sub-group, can always be decomposed into three others belonging respectively to three given rotative sheaves. Every displacement interchangeable with a rotative sub-group forms part of this sub-group.

Any displacement sufficiently small can always be decomposed into two others belonging respectively to two given rotative sub-groups, or to *six given rotative sheaves*.

Later on I shall revert in detail to the origin of these various propositions.

TRANSLATIVE SUB-GROUPS.

With these propositions we have sufficient material, not to construct the geometry of Euclid, but to limit the choice between that of Euclid and the geometries of Lobatchévski and Riemann. In order to go farther, we are in need of a new proposition to take the place of the postulate of parallels. The proposition substituted will be the existence of an *invariant* sub-group, of which all the displacements are interchangeable and which is formed of all translations.

It is this that determines our choice in favor of the geometry of Euclid, because the group that corresponds to the geometry of Lobatchévski does not contain such an invariant sub-group.

NUMBER OF DIMENSIONS.

In the ordinary theory of groups, we distinguish order and degree. Let us suppose the simplest case first, that of a group formed by different permutations between certain objects. The number of the objects is called the degree; the number of the permutations is called the order of the group. Two such groups may be isomorphic and their permutations may combine according to the same laws without their degree being the same. Thus let us consider the different ways in which a cube can be superposed upon itself. The vertices may be interchanged one with another, as may also be the

faces and the edges; whence result three groups of permutations which are evidently isomorphic among themselves; but their degree may be either eight, six, or twelve, since there are eight vertices, six faces, and twelve edges.

On the other hand, two mutually isomorphic groups have always the same order. The degree is, so to speak, a material element, and the order a formal element, the importance of which is far greater. The theory of two groups of different degree may be the same so far as its formal properties are concerned; just as the mathematical theory of the addition of three cows and four cows is identical with that of three horses and four horses.

When we pass to continuous groups, the definitions of order and degree must be modified, though without sacrificing their spirit. Mathematicians suppose ordinarily that the object of the operations of the group is an *ensemble* of a certain number n of quantities susceptible of being varied in a continuous manner, which quantities are called *co-ordinates*. On the other hand, every operation of the group may be regarded as forming part of a sheaf analogous to the rotative sheaf and as a multiple of a very high order of an infinitesimal operation belonging to the same sheaf. Then, every infinitesimal operation of the group can be decomposed into k other operations belonging to k given sheaves. The number n of the co-ordinates (or of the dimensions) is then the *degree*, and the number k of the components of an infinitesimal operation is the *order*. Here again two isomorphic groups may have different degrees, but must be of the same order. Here again the degree is an element relatively material and secondary, and the order a formal element. According to the laws established above, our group of displacements is here of the sixth order, but its degree is yet unknown. Is the degree given us immediately?

Displacements, we have seen, correspond to changes in our sensations, and if we distinguish in the present group between form and material, the material can be nothing else than that which the displacements cause to change, viz., our sensations. Even if we suppose that what we have above called sensible space has already been elaborated, the material would then be represented

by as many continuous variables as there are nerve-fibres; the "degree" of our group would then be extremely large. Space would not have three dimensions but as many as there are nerve-fibres. Such is the consequence to which we come if we accept as the material of our group what is immediately given us. How shall we escape the difficulty? Evidently by replacing the group which is given us, together with its form and its material, by another *isomorphic* group, the material of which is simpler.

But how is this to be done? It is precisely owing to this circumstance, that the displacements which conserve certain elements are the same as those which conserve certain other elements. Then all those elements which are conserved by the same displacements we agree to replace by a single element which has a purely schematic value only. Whence results a considerable reduction of degree.

For example, I see a solid body rotating about a fixed point. The parts near the fixed point are painted red. Here is a displacement, and within this displacement I perceive that something remains invariable—namely, the sensation of red conveyed to me by a certain optical nerve-fibre. Some time afterward I see an other solid body turning about a fixed point. But the parts near the fixed point are painted green. The sensations experienced are in themselves quite different, but I perceive that it is the same displacement because it can be corrected by the same internal change. Here again something remains invariable; but this something is totally different from the material point of view; it is the sensation of green conveyed by a certain nerve-fibre.

These two things, which materially are so different, I replace schematically by a single thing which I call a point, and I express my thought by saying that in the one case as in the other, a point of the body has remained fixed. Thus every one of our new elements will be what is conserved by all the displacements of a sub-group; to every sub-group there will then correspond an element and *vice versa*.

Let us consider the different transformations of the same sub-group. They are infinite in number and may form a simple,

double, triple, continuous infinity. To each one of these transformations an element can be made to correspond; I have then a simple, double, triple, etc., infinity of them, and the degree of our continuous group is 1, 2, 3, ...

Suppose that we choose the different transformations of a rotative sub-group. We have here a triple infinity. The material of our group is accordingly composed of a triple infinity of elements. The degree of the group is three. We have then chosen the point as the element of space and given to space three dimensions.

Suppose we choose the different transformations of a helicoidal sub-group. Here we have a quadruple infinity. The material of our group is composed of a quadruple infinity of elements. Its degree is four. We then have chosen the straight line as the element of space,—which would give to space four dimensions.

Suppose, finally, that we choose the different transformations of a rotative sheaf. The degree would then be five. We have chosen as the element of space the figure formed by a straight line and a point on that straight line. Space would have five dimensions.

Here are three solutions, which are each logically possible. We prefer the first because it is the simplest, and it is the simplest because it is that which gives to space the smallest number of dimensions. But there is another reason which recommends this choice. The rotative sub-group first attracts our attention because it conserves certain sensations. The helicoidal sub-group is known to us only later and more indirectly. The rotative sheaf on the other hand is itself merely a sub-group of the rotative sub-group.

THE NOTION OF POINT.

I feel that I am here touching on the most delicate spot of this discussion, and I am compelled to stop for a moment to justify more completely my previous assertions which some persons may be disposed to doubt. Many persons, indeed, would consider the notion of a point of space as so immediate and so clear that any definition of it is superfluous. But I believe it will be granted me that so subtle a notion as that of the mathematical point, without

length, breadth, or thickness, is not immediate, and that it needs to be explained.

But is it the same with the vaguer and less precisely defined, yet more empirical notion, of *place*? Is there any one who does not fancy he knows perfectly well what he is talking about when he says: this object occupies the place which was just occupied by that object. To determine the range of such an assertion, and the conclusions which can be drawn from it, let us seek to analyse its signification. If I have moved neither my body, my head, nor my eye, and if the image of the object B affects the same retinal fibres that the image of the object A previously affected; if again, although I have moved neither my arm nor my hand, the same sensory fibres which extend to the end of the finger, and which formerly conveyed to me the impression which I attributed to the object A now convey to me the impression which I attribute to the object B; if both these conditions are fulfilled,—then ordinarily we agree to say that the object B occupies the place which previously the object A occupied.

Before analysing so complicated a convention as that just stated I shall first make a remark. I have just enunciated two conditions: one relating to sight, and one relating to touch. The first is necessary but not sufficient, for we say in ordinary language that the point on the retina where an image is formed gives us knowledge only of the direction of the visual ray, but that the distance from the eye remains unknown. The second condition is at once necessary and sufficient, because we assume that the action of touch is not exercised at a distance, and that the object A like the object B cannot act upon the finger except by immediate contact. All this agrees with what experience has taught us; namely, that the first condition can be fulfilled without the second being realised, but that the second cannot be fulfilled without the first. Let it be remarked that we have here something which we could not know *a priori*, that experience alone is able to demonstrate it to us.

Nor is this all. To determine the place of an object I made use only of an eye and a finger. I could have made use of several other means,—for example, of all my other fingers. Having been

made aware that the object *A* has produced upon my first finger a tactual impression, suppose that by a series of movements *S* my second finger comes into contact with the same object *A*. My first tactual impression ceases and is replaced by another tactual impression which is conveyed to me by the nerve of the second finger, and which I still attribute to the action of the object *A*. Some time afterwards, and without my having moved my hand, the same nerve of the second finger conveys to me another tactual impression, which I attribute to the action of another object *B*. I then say that the object *B* has taken the place of the object *A*.

At this moment I make a series of movements *S'* the inverse of the series *S*. How do I know that these two series are inverse to one another? Because experience has taught me that when the internal change *S* that corresponds to certain muscular sensations is followed by an internal change *S'* which corresponds to other muscular sensations, a compensation is effected and my primitive impressions, originally modified by the change *S*, are reestablished by the change *S'*.

I execute the series of movements *S'*. The effect ought to be to take back my first finger to its initial position and so to put it into contact with the object *B*, which has taken the place of the object *A*. I ought, therefore, to expect that the nerve of my first finger should convey to me a tactual sensation attributable to the object *B*. In fact this is what happens.

But would it therefore be absurd to suppose the contrary? And why would it be absurd? Shall I say that the object *B* having taken the place of the object *A*, and my first finger having resumed its original place, it ought to touch the object *B* just as before it touched the object *A*? This would be an outright begging of the question. And to show this let us attempt to apply the same reasoning to another example, or rather let us return to the example of sight and touch which I cited at the outset.

The image of the object *A* has made an impression on one of my retinal fibres. At the same time the nerve of one of my fingers conveys to me a tactual impression which I attribute to the same object. I move neither my eye nor my hand. And a moment after

the image of the object B has impressed the same retinal fibre. By a course of reasoning perfectly similar to that which precedes, I should be tempted to conclude that the object B had taken the place of the object A, and I should expect that the nerve of my finger would convey to me a tactual impression attributable to B. And yet I should be deceived. For the image of B may chance to be formed upon the same point of the retina as the image of A, although the distance to the eye may not be the same in the two cases.

Experience has refuted my reasoning. I extricate myself by saying that it is not sufficient for two bodies to cast their image upon the same retinal fibre in order to justify me in saying that the two bodies are in the same place; and I should extricate myself in a similar manner in the case of the two fingers, if the indications of the second finger had not been in accord with those of the first, and if experience had been at variance with my reasoning. I should still say that two objects A and B can make an impression upon the same finger by means of touch and yet not be in the same place; in other words, I should conclude that touch could be effected at a distance. Or, again, I should agree to consider A and B as being in the same place only on the condition of there being concordance not only between their effects upon the first finger, but also between their effects upon the second finger. One might almost say, in a certain point of view, that one more dimension would be attributed to space in this manner.

To sum up, there are certain laws of *concordance*, which can be revealed to us only by experience, and which are at the basis of the vague notion of place.

But even taking these laws of concordance for granted, can we deduce from them the much more precise notion of point and the notion of number of dimensions? This remains to be examined.

First an observation. We have spoken of two objects A and B, which have cast one after another their image on the same point of the retina. But these two images are not identical; otherwise how could I distinguish them? They differ, for example, in color. The one is red, the other is green. We have, accordingly, two sen-

sations which differ in quality and which are doubtless conveyed to me by two different though contiguous nerve-fibres. What have they in common with one another, and why am I led to associate them together? I believe that if the eye were immovable, we should never have thought of this association. It is the movements of the eye that have taught us that there is the same relation on the one hand between the sensation of green at the point *A* of the retina and the sensation of green at the point *B* of the retina, and on the other hand between the sensation of red at the point *A* of the retina and the sensation of red at the point *B* of the retina. We have found, in fact, that the same movements, corresponding to the same muscular sensations, cause us to pass from the first to the second, or from the third to the fourth. Were this not so, these four sensations would appear qualitatively distinct, and we should no more think of establishing a sort of proportion between them than we should between an olfactory, a gustatory, an auditive and a tactual sensation.

Yet whatever be the origin of this association, it is implied in the notion of place, which could not have grown up without it. Let us analyse, therefore, its laws. We can only conceive them under two different forms equally remote from mathematical continuity; namely, under the form of discontinuity or under the form of physical continuity.

Under the first form, our sensations will be divided into a very large number of "families"; all the sensations of one family being associated with one another and not being associated with those of other families. Since to every family there would correspond a place, we should have a finite but very large number of places, and the places would form a discrete aggregate. There would be no reason for classifying them in a table of three dimensions rather than in one of two or four; and we could not deduce from them either the mathematical point or space.

Under the second form, which is more satisfactory, the different families interpenetrate one another. *A*, for example, will be associated with *B*, and *B* with *C*. But *A* will not appear to us as associated with *C*. We shall find that *A* and *C* do not belong to

the same family, although on the one hand A and B, and on the other hand B and C, will appear to us as belonging to the same family. Thus we cannot distinguish between a weight of nine grammes and one of ten grammes, or between the latter weight and a weight of eleven grammes. But we can readily tell the difference between the first weight and the third. This is always the formula of physical continuity.

Let us picture to ourselves a series of wafers partially covering one another in such wise that the plane is totally covered ; or better, let us picture to ourselves something analogous in a space of three dimensions. If these wafers were to form by their superposition only a sort of one-dimensional ribbon, we should recognise it, because the associations of which I have just been speaking obey a law that may be stated as follows : if A is associated at once with B, C, and D, D is associated with B or with C. This law would not be true if our wafers covered by their superposition a plane or a space of more than two dimensions. When I say, therefore, that all possible places constitute an aggregate of one dimension or of more than one dimension, I mean to say simply that this law is true or that it is false. When I say that they constitute an aggregate of two or three dimensions, I simply affirm that certain analogous laws are true.

Such are the foundations on which we may attempt to construct a *static* theory of the number of dimensions. It will be seen how complicated is this manner of defining the number of dimensions, how imperfect it is, and it is useless to remark upon the distance which still separates the physical continuity of three dimensions as thus understood from the real mathematical continuity of three dimensions.

DISCUSSION OF THE PRECEDING THEORY.

Without dwelling upon the multitude of difficult details, let us see in what those associations consist upon which the notion of place rests. We shall see that we are finally led back, after a long detour, to the notion of group, which appeared to us at the outset

the best fitted for elucidating the question of the number of dimensions.

By what means are different "places" distinguished from one another? How, for example, are two places occupied successively by the extremity of one of my fingers to be distinguished? Evidently by the movement which my body has made in the interval, movements which are made known to me by a certain series of muscular sensations. These two places correspond to two distinct attitudes and positions of the body which are known solely by the movements which I have had to make in changing a certain initial attitude and a certain initial position; and these movements themselves are known to me only by the muscular sensations which they have provoked.

Two attitudes of the body, or two corresponding places of the finger, appear to me identical if the two movements which I must make to reach them differ so little from each other that I cannot distinguish the corresponding muscular sensations. They will appear to me non-identical, without some new convention, if they correspond to two series of distinguishable muscular sensations.

But in this manner we have engendered not a physical continuity of three dimensions but a physical continuity of a much larger number of dimensions; for I can cause the muscular sensations corresponding to a very large number of muscles to vary, and I do not on the other hand consider a single muscular sensation only, nor even an aggregate of simultaneous sensations, but a series of successive sensations, and I can make the laws by which these sensations succeed one another vary in an arbitrary manner.

Why is the number of dimensions reduced, or, what is the same thing, why do we consider two places as identical when the two corresponding attitudes of the body are different? Why do we say in certain cases that the place occupied by the extremity of a finger has not changed, although the attitude of the body has changed?

It is because we discover that very *frequently*, in the movement which causes the passage from the one to the other of these two attitudes, the tactual sensation attributable to the contact of this finger with an object *A* persists and remains constant. We *agree*

then, to say that these two attitudes shall be placed in the same class and that this class shall embrace all attitudes corresponding to the same place occupied by the same finger. We agree that these two attitudes shall still be placed in the same class even when they are accompanied by no tactual sensation, or by variable tactual sensations.

This convention has been evoked by experience, because experience alone informs us that certain tactual sensations are frequently persistent. But in order that conventions of this kind shall be permissible, they must satisfy certain conditions which it now remains for us to analyse.

If I place the attitudes A and B in the same class, and also the attitudes B and C in the same class, it follows necessarily that the attitudes A and C must be regarded as belonging to the same class. If, then, we agree to say that the movements which cause the passage from the attitude A to the attitude B do not change the place of the finger, and if the same holds true of the movements which cause the passage from the attitude B to the attitude C, it follows necessarily that the same must again be true of those which cause the passage from the attitude A to the attitude C. In other words, the aggregate of the movements causing a passage from one attitude to another attitude of the same class constitutes a group. It is only when such a group exists that the convention above laid down is acceptable. To every class of attitudes, and consequently to every place, there will therefore correspond a group, and we are here led back again to the notion of group, without which there would be no geometry.

Nevertheless, there is a difference between the principle here under discussion and the theory which I developed above. Here each place appears to me associated with a certain group which is introduced as the sub-group S of the group G formed by the movements which can give to the body all possible positions and all possible attitudes, the relative situations of the different parts of the body being allowed to vary in any manner whatsoever. In our other theory, on the contrary, every point was associated with a sub-group S' of the group G' formed by the displacements of the

body viewed as an invariable solid, that is to say, by displacements such that the relative situations of the different parts of the body do not vary.

Which of the two theories is to be preferred? It is evident that G' is a sub-group of G and S' a sub-group of S. Further, G is much simpler than G, and for this reason the theory which I first propounded and which is based upon the consideration of the group G' appears to me simpler and more natural, and consequently I shall hold to it.

But be this as it may, the introduction of a group, more or less complicated, appears to be absolutely necessary. Every purely statical theory of the number of dimensions will give rise to many difficulties, and it will always be necessary to fall back upon a dynamical theory. I am happy to be in accord on this point with the ideas set forth by Professor Newcomb in his *Philosophy of Hyperspace.*

THE REASONING OF EUCLID.

But in order to show that the idea of displacement, and consequently the idea of group, has played a preponderant part in the genesis of geometry, it remains to be shown that this idea dominates all the reasoning of Euclid and of the authors who after him have written upon elementary geometry.

Euclid begins by enunciating a certain number of axioms; but it must not be imagined that the axioms which he enunciates explicitly are the only ones to which he appeals. If we carefully analyse his demonstrations we shall find in them, in a more or less masked form, a certain number of hypotheses which are in reality axioms disguised; and we may say almost as much of some of his definitions.

His geometry begins with declaring that two figures are equal if they are superposable. This assumes that they can be displaced and also that among all the changes which they may undergo, we can distinguish those which may be regarded as displacements without deformation. Again, this definition implies that two figures which are equal to a third are equal to each other. And that

is tantamount to saying that if there be a displacement which puts the figure A upon the figure B, and a second displacement which superposes the figure B upon the figure C, there will also be a third, the resultant of the first two, which will superpose the figure A upon the figure C. In other words, it is presupposed that the displacements form a group. The notion of a group, accordingly, is introduced from the outset, and inevitably introduced.

When I pronounce the word "length," a word which we frequently do not think necessary to define, I implicitly assume that the figure formed by two points is not always superposable upon that which is formed by two other points; for otherwise any two lengths whatever would be equal to each other. Now this is an important property of our group.

I implicitly enunciate a similar hypothesis when I pronounce the word "angle."

And how do we proceed in our reasonings? By displacing our figures and causing them to execute certain movements. I wish to show that at a given point in a straight line a perpendicular can always be erected, and to accomplish this I conceive a movable straight line turning about the point in question. But I presuppose here that the movement of this straight line is possible, that it is continuous, and that in so turning it can pass from the position in which it is lying on the given straight line, to the opposite position in which it is lying on its prolongation. Here again is a hypothesis touching the properties of the group.

To demonstrate the cases of the equality of triangles, the figures are displaced so as to be superposed one upon the other.

Finally, what is the method employed in demonstrating that from a given point one and only one perpendicular can always be drawn to a given straight line? The figure is turned 180° around the given straight line, and in this manner the point symmetrical to the given point with respect to the given straight line is obtained. We have here a feature most characteristic, and here appears the part which the straight line most frequently plays in geometrical demonstrations, namely, that of an axis of rotation.

There is implied here the existence of the sub-group which I

have called the rotative sheaf. When—which also frequently happens—a straight line is made to slide along itself (for we shall, of course, continue to suppose that it can serve as an axis of rotation), we implicitly take the existence of the helicoidal sub-group for granted. In fine, the principal foundation of Euclid's demonstrations is really the existence of the group and its properties.

Unquestionably he appeals to other axioms which it is more difficult to refer to the notion of group. An axiom of this kind is that which some geometers employ when they define a straight line as the shortest distance between two points. *But it is precisely such axioms that Euclid enunciates.* The others, which are more directly associated with the idea of displacement and with the idea of groups, are the very ones which he implicitly admits, and which he does not deem it even necessary to enunciate. This is tantamount to saying that the former are the fruit of a later experience, that the others were first assimilated by us, and that consequently the notion of group existed prior to all the others.

THE GEOMETRY OF STAUDT.

It is known that Staudt attempted to base geometry upon different principles. Staudt admits the following axioms only:

1. Through two points a straight line can always be drawn.

2. Through three points a plane can always be drawn.

3. Every straight line which has two of its points in a plane lies entirely in that plane.

4. If three planes have one point in common, and one only, any straight line will cut at least one of these three planes.

These axioms are sufficient to establish all the *descriptive* properties relating to the intersections of straight lines and planes. To obtain the metrical properties we begin with *defining* a harmonic pencil of four straight lines, taking as definition the well-known descriptive property. Then the anharmonic ratio of four points is *defined*, and finally, supposing that one of these four points has been relegated to infinity, the ratio of two lengths is *defined*.

This last is the weak point of the foregoing theory, attractive though it be. To arrive at the notion of length by regarding it

merely as a particular case of the anharmonic ratio is an artificial and repugnant detour. This evidently is not the manner in which our geometrical notions were formed.

Let us see now whether we can conceive, without the introduction of the notion of group and of movement, how the notions which serve as the foundations of this ingenious geometry have taken their rise. Let us see what experiences might have led us to formulate the axioms enunciated above.

If the straight line is not given as an axis of rotation, it can be given only in one way, namely, as the trajectory of a ray of light. I mean, that the experiences, always more or less crude, which serve us as our point of departure, should all be applicable to the ray of light, and that we must define the straight line as a line for which the simple laws which the ray of light approximately obeys will be rigorously true. The following is the experience which must be made in order to verify the most important of our axioms, namely, the third.

Let two threads be stretched. Let the eye be placed at the extremity of one of these threads. We see that the thread is entirely hidden by its extremity, which teaches us that the thread is rectilinear, that is to say, is the direction of the trajectory of a ray of light. Let the same be done for the second thread. The following is then observed: either there will be no position of the eye for which one of the threads is entirely hidden by the other, or there will be an infinity of such positions.

How is the question of the number of dimensions presented in this order of ideas? Let us consider all the positions of the eye for which one of the strings is hidden by the other. Let us suppose that in one of these positions the point A of the first string is hidden by the point A' of the second, the point B by the point B', the point C by the point C'. We then discover that if the body is so displaced that the point A is always hidden by the point A' and the point B by the point B', that the point C always remains hidden by the point C', and that in general any point whatsoever of the first thread remains hidden by the same point of the second thread by which it was hidden before the body was displaced. We ex-

press this fact by saying that although the body is displaced, the position of the eye has not changed.

We see thus that the position of the eye is defined by two conditions, viz., that A is hidden by A' and B by B'. We express this fact by saying that the *locus* of the points such that the two threads mutually hide each other has two dimensions.

Similarly, let us suppose that in a certain position of the body four threads A, B, C, D, hide four points A', B', C', D'; let us suppose that the body is displaced, but in such a manner that A, B, and C continue to hide A', B', and C'. We shall then discover that D continues to hide D', and we shall again express this fact by saying that the position of the eye has not changed. This position will therefore be defined by three conditions, and this is why we say that space has three dimensions.

It will be remarked that the law as thus experimentally discovered, is only approximately true. But this is not all. It is not even always true, because D or D' may have moved at the same time that my body was being displaced. We then simply declare that this law is often approximately true.

But we are desirous of arriving at geometrical axioms which are rigorously and always true, and we always escape the dilemma by the same artifice, namely, by saying that we agree to consider the change observed as the resultant of two others, viz., of one which rigorously obeys the law and which we attribute to the displacement of the eye, and of a second one which is generally very small and which we attribute either to qualitative alterations or to the movements of external bodies.

We have not been able to avoid the consideration of movements of the eye and of the body, yet we may say, that from a certain point of view the geometry of Staudt is predominantly a visual geometry, while that of Euclid is predominantly muscular.

Undoubtedly unconscious experiences analogous to those of which I have just spoken may have played a part in the genesis of geometry; but they are not sufficient. If we had proceeded, as the geometry of Staudt supposes us to have done, some Apollonius would have discovered the properties of polars. But it would have

been only long after, that the progress of science would have made clear what a length or an angle is. We should have had to wait for some Newton to discover the various cases of the equality of triangles. And this is evidently not the way that things have come to pass.

THE AXIOM OF LIE.

It is Sophus Lie who has contributed most towards making prominent the importance of the notion of group and laying the foundations of the theory that I have just expounded. It is he, in fact, who gave the present form to the mathematical theory of continuous groups. But to render possible its application to geometry, he regards a new axiom as necessary, which he enunciates by declaring that space is a *Zahlenmannigfaltigkeit;* that is, that to every point of a straight line there corresponds a number and *vice versa.*

Is this axiom absolutely necessary? And could not the other principles which Lie has laid down dispense with it? We have seen above in connexion with continuity, that the best known groups may be distributed from a certain point of view into three classes; all the operations of the group can be divided into sheaves; for "discontinuous" groups the different operations of the same sheaf are only a single operation repeated once, twice, three times, etc.; for "continuous" groups properly so called the different operations of the same sheaf correspond to different whole numbers, commensurable or incommensurable; finally, for groups which may be called "semi-continuous," these operations correspond to different commensurable numbers.

Now it may be demonstrated that no discontinuous or semi-continuous group exists possessing other properties than those which experience has led us to adopt for the fundamental group of geometry, and which I here briefly recall: The group contains an infinity of sub-groups, all *gleichberechtigt*, which I call rotative sub-groups. Two rotative sub-groups have a sheaf in common which I call rotative and which is common not only to two but also to an infinity of rotative sub-groups. Finally, every very small displace-

ment of the group may be regarded as the resultant of six displacements belonging to six given rotative sheaves. A group satisfying these conditions can be neither discontinuous nor semi-continuous.

Unquestionably this is an exceedingly recondite property, and not easy to demonstrate. Geometers who were ignorant of it have not the less hit upon its consequences, as for example, when they learned that the ratio of a diagonal to the side of a square is incommensurable. It was for this reason that the introduction of incommensurables into geometry became necessary.

The group, therefore, must be continuous, and it seems as if the axiom of Lie were useless.

Nevertheless, we are obliged to remark that the classification of groups above sketched is not complete; groups may be conceived which are not included in it. We might, therefore, suppose that the group is neither discontinuous, semi-continuous, nor continuous. But this would be a complex hypothesis. We reject it, or rather we never think of it, for the reason that it is not the simplest compatible with the axioms adopted.

The foundation of the axiom of Lie remains to be supplied.

GEOMETRY AND CONTRADICTION.

In following up all the consequences of the different geometrical axioms, are we never led to contradictions? The axioms are not analytical judgments *a priori;* they are conventions. Is it certain that all these conventions are compatible?

These conventions, it is true, have all been suggested to us by experiences, but by crude experiences. We discover that certain laws are approximately verified, and we decompose the observed phenomenon conventionally into two others: a purely geometrical phenomenon which exactly obeys these laws; and a very minute disturbing phenomenon.

Is it certain that this decomposition is always permissible? It is certain that these laws are *approximately* compatible, for experience shows that they are all approximately realised at one and the same time in nature. But is it certain that they would be compatible if they were absolutely rigorous?

For us the question is no longer doubtful. Analytical geometry has been securely established, and *all* the axioms have been introduced into the equations which serve as its point of departure; we could not have written these equations if the axioms had been contradictory. Now that the equations are written, they can be combined in all possible manners; analysis is the guarantee that contradictions shall not be introduced.

But Euclid did not know analytical geometry, and yet he never doubted for a moment that his axioms were compatible. Whence came his confidence? Was he the dupe of an illusion? And did he attribute to our unconscious experiences more value than they really possess? Or perhaps, since the idea of the group was potentially pre-existent in him, did he have some obscure instinct for it, without reaching a distinct notion of it? I shall leave the question undecided although inclined towards the second solution.

THE USE OF FIGURES.

It may be asked why geometry cannot be studied without figures. This is easy to account for. When we commence studying geometry, we have already had in innumerable instances the fundamental experiences which have enabled our notion of space to originate. But they were made without method, without scientific attention and unconsciously, so to speak. We have acquired the ability *to represent to ourselves* familiar geometrical experiences without being obliged to resort to material reproductions of them; but we have not yet deduced from them logical conclusions. How is this to be done? Before enunciating the law, the experience in question is perceptually represented by stripping it as completely as possible of all accessory or disturbing circumstances,—just as a physicist eliminates the sources of systematic error in his experiments. It is here that figures are necessary, but they are an instrument only slightly less crude than the chalk which is employed in drawing them; and, like material objects, it is beyond our power to represent them in the geometrical space which forms the object of our studies; we can only represent them in sensible space. We

accordingly do not study material figures, but simply make use of them in studying something which is higher and more subtle.

FORM AND MATTER.

We owe the theory which I have just sketched to Helmholtz and Lie. I differ from them in one point only, but probably the difference is in the mode of expression only and at bottom we are completely in accord.

As I explained above, we must distinguish in a group the form and the matter [material]. For Helmholtz and Lie the matter of the group existed previously to the form, and in geometry the matter is a *Zahlenmannigfaltigkeit* of three dimensions. *The number of dimensions is therefore posited prior to the group.* For me, on the contrary, the form exists before the matter. The different ways in which a cube can be superposed upon itself, and the different ways in which the roots of a certain equation may be interchanged, constitute two isomorphic groups. They differ in matter only. The mathematician should regard this difference as superficial, and he should no more distinguish between these two groups than he should between a cube of glass and a cube of metal. In this view the group exists prior to the number of dimensions.

We escape in this way also an objection which has often been made to Helmholtz and Lie. "But your group," say these critics, "presupposes space; to construct it you are obliged to assume a continuum of three dimensions. You proceed as if you already knew analytical geometry." Perhaps the objection was not altogether just; the continuum of three dimensions which Helmholtz and Lie posited was a sort of non-measurable magnitude analogous to magnitudes concerning which we may say that they have grown larger or smaller, but not that they have become twice or three times as large.

It is only by the introduction of the group, that they made of it a measurable magnitude, that is to say a veritable space. Again, the origin of this non-measurable continuum of three dimensions remains imperfectly explained.

But, it will be said, in order to study a group even in its formal properties, it is necessary to construct it, and it cannot be constructed without matter. One might as well say that one cannot study the geometrical properties of a cube without supposing this cube to be of wood or of iron. The complexus of our sensations has without doubt furnished us with a sort of matter, but there is a striking contrast between the grossness of this matter and the subtle precision of the form of our group. It is impossible that this can be, properly speaking, the matter of such a group. The group of displacements such as it is given us directly by experience, is something more gross in character; it is, we may say, to continuous groups proper what the physical continuum is to the mathematical continuum. We first study its form agreeably to the formula of the physical continuum, and since there is something repugnant to our reason in this formula we reject it and substitute for it that of the continuous group which, potentially, pre-exists in us, but which we originally know only by its form. The gross matter which is furnished us by our sensations was but a crutch for our infirmity, and served only to force us to fix our attention upon the pure idea which we bore about in ourselves previously.

CONCLUSIONS.

Geometry is not an experimental science; experience forms merely the occasion for our reflecting upon the geometrical ideas which pre-exist in us. But the occasion is necessary; if it did not exist we should not reflect; and if our experiences were different, doubtless our reflexions would also be different. Space is not a form of our sensibility; it is an instrument which serves us not to represent things to ourselves, but to reason upon things.

What we call geometry is nothing but the study of formal properties of a certain continuous group; so that we may say, space is a group. The notion of this continuous group exists in our mind prior to all experience; but the assertion is no less true of the notion of many other continuous groups; for example, that which corresponds to the geometry of Lobatchévski. There are,

accordingly, several geometries possible, and it remains to be seen how a choice is made between them. Among the continuous mathematical groups which our mind can construct, we choose that which deviates least from that rough group, analogous to the physical continuum, which experience has brought to our knowledge as the group of displacements.

Our choice is therefore not imposed by experience. It is simply guided by experience. But it remains free; we choose this geometry rather than that geometry, not because it is more *true*, but because it is the more *convenient*.

To ask whether the geometry of Euclid is true and that of Lobatchévski is false, is as absurd as to ask whether the metric system is true and that of the yard, foot, and inch, is false. Transported to another world we might undoubtedly have a different geometry, not because our geometry would have ceased to be true, but because it would have become less convenient than another. Have we the right to say that the choice between geometries is imposed by reason, and, for example, that the Euclidean geometry is alone true because the principle of the relativity of magnitudes is inevitably imposed upon our mind? It is absurd, they say, to suppose a length can be equal to an abstract number. But why? Why is it absurd for a length and not absurd for an angle? There is but one answer possible. It appears to us absurd, because it is contrary to our habitual way of thinking. Unquestionably reason has its preferences, but these preferences have not this imperative character. It has its preferences for the simplest because, all other things being equal, the simplest is the most convenient. Thus our experiences would be equally compatible with the geometry of Euclid and with a geometry of Lobatchévski which supposed the curvature of space to be very small. We choose the geometry of Euclid because it is the simplest. If our experiences should be considerably different, the geometry of Euclid would no longer suffice to represent them conveniently, and we should choose a different geometry.

Let it not be said that the reason why we deem the group of Euclid the simplest is because it conforms best to some pre-existing ideal which has already a geometrical character; it is simpler be-

cause certain of its displacements are interchangeable with one another, which is not true of the corresponding displacements of the group of Lobatchévski. Translated into analytical language, this means that there are fewer terms in the equations, and it is clear that an algebraist who did not know what space or a straight line was would nevertheless look upon this as a condition of simplicity.

In fine, it is our mind that furnishes a category for nature. But this category is not a bed of Procrustes into which we violently force nature, mutilating her as our needs require. We offer to nature a choice of beds among which we choose the couch best suited to her stature.

H. POINCARÉ.

PARIS, FRANCE.

ON PASIGRAPHY.

ITS PRESENT STATE AND THE PASIGRAPHIC MOVEMENT IN ITALY.

THE following communication was delivered in the German language at Zürich in August 1897 before the first International Congress of Mathematicians, first Section (for Arithmetic and Algebra). The Congress, which was attended by over 240 persons from nearly every civilised part of the globe, proved to be a remarkable success, though, owing to the fact that most of the British and American mathematicians were on their way to the Meeting of the British Association at Toronto, the English-speaking element was but scantily represented, there being only ten such persons present at the most. The next congress is to take place at Paris in 1900. The idea of starting such a congress having already been mooted at the meeting of the German Society of naturalists and physicians at Frankfurt a. M. in 1896, it ripened into a workable shape. There the opinion prevailed that the English language, being neutral ground between the French and the German, would be elected as the official means of communication, agreeably to which opinion the author had prepared his paper in English.[1] We are glad to put the original—since but slightly altered—before our readers nearly at the same time that the Reports of the Congress appear.

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[1] The editors have been careful to preserve all the stylistic and typographical details of the original MS. of Professor Schröder.—*Ed.*

At an *international* Congress of Mathematicians there is in my opinion scarcely any topic more worthy of discussion, than that of Pasigraphy. For the aim of this novel branch of Science is nothing less than the ultimate establishment of a scientific Language, entirely free from national peculiarities, and through its very construction conveying the foundation of exact and true philosophy.

Such a language of course cannot be created at once for the whole realm of human thought. Its most important and hitherto mainly realised parts appear to be those which concern the *fundamental notions* of *pure Mathematics*, especially *Logic*, *Arithmetic*, Geometry.

I shall chiefly confine myself to some of these departments.

Time will not permit me to enter into an historical exposition. Suffice it to bring to recollection, that the pasigraphic discipline was clearly foreseen and postulated by DESCARTES, and that it formed an ideal hovering before the mind of LEIBNIZ during his whole life. As my accomplished friend Signor PEANO has recently pointed out, Leibniz so much cherished and appreciated the idea, that he says: except the founder of a religion or the ruler of a state —praeter Prophetam ac Principem—no person could better serve humanity than he who would realise that ideal—then so far away and actually not much more than a dim concept.

Leibniz also complained of the very small interest his contemporaries exhibited in the matter. The same complaint would in most quarters prove just as well founded now-a-days. However I venture to trust, that on the present occasion I may be fortunate enough to arouse some enthusiasm for this very important subject, which *now* appears to have entered upon a very promising stage.

Still at the outset it is necessary to contradict Signor Peano's statement of 1894 in his "Introduction au formulaire de mathématique," p. 52, that: "Le problème proposé par Leibniz *est* (donc) résolu." With this sanguine dictum he—as we shall see—altogether anticipated the actual and impending achievement of pasigraphic science. For when his assertion was uttered, not even the indispensable means for attaining the goal had then been secured

or rendered generally accessible, as they are at present. But even at this date there is yet much hard work to be gone through.

The problem to be solved for any given branch of science amounts to: expressing *all* the notions which it comprises, adequately and in the concisest possible way, through a minimum of *primitive notions*, say "categories," by means of purely logical operations of general applicability, thus remaining the same for every branch of science and being subject to the laws of ordinary Logic, but which latter will present themselves in the shape of a "calculus ratiocinator." For the categories and the operations of this "lingua characteristica" or "scriptura universalis" easy signs and simple symbols, such as letters, are to be employed, and—unlike the "words" of common language—they are to be used with absolute consistency (with perfect "Konsequenz," as we Germans say, or mathematical strictness, "Strenge").

It is almost superfluous to emphasise on how much higher a level this, our logical, aim stands, as compared with the merely linguistic endeavors of the Volapükists for instance, who are only striving to create means of mutual comprehension among the users of different languages, and the very mention of whom nearly amounts to a degradation of our object.

It may once for all be explicitly stated, that the pasigraphic language is not in the least destined ever to be *spoken*, but only to serve and forward on account of its logical structure the purposes of Science; first of all of that science, which the ancient Greek called "*the* science (katexochen)," Mathesis, and next: of Logic and an exact Philosophy, so long lacking, and hence to be hoped for—at last!

As an individual opinion of mine, perhaps not as yet shared by many, I may be permitted to state, by the way, that I consider pure Mathematics to be only one branch of general Logic, the branch originating from the creation of Number, to the economical virtues of which is due the enormous development that particular branch has been favored with in comparison with the other branches of Logic that until of late almost remained stationary. This view is confirmed by the fact, that under the pasigraphic aspect Arith-

metic can do without any peculiar categories or primitive notions—those of general logic sufficing to compose all its notions (such as multitude, number, finiteness, limes, function, Abbildung or one-to-one correspondence, addition, etc.).

If we limit our considerations to purest Mathematics it is indeed already becoming manifest—chiefly owing to the development which Charles S. PEIRCE's Logic of Relatives has experienced—that all its notions, as well as those of Logic in general, are reducible to only *five* primitive notions or categories in the Aristotelian and Kantian sense.

Before these are presented a remark is needed.

The minimum number of indispensable symbols will exceed the said number 5 of the categories, some of which must find a representation by symbols doubly: just as in arithmetic neither of the two signs

$$+ \text{ and } \Sigma$$

can in the long run or eventually be dispensed with, notwithstanding that both merely serve to represent the unique notion of an arithmetical *sum*.

Besides, these categories do not constitute the whole of the system of fundamental denotations. Whereas for instance parentheses or brackets form a very important and practically indispensable element of denotation, yet do not represent any notion at all and in themselves are devoid of meaning. (As is well known, brackets only serve in our symbolic language, as in Algebra, to characterise any compound of symbols, when included by them, as forming *one name*.) Moreover, we are constantly led to employ letters in the quality of *general* symbols, ready for such use, because of their having no fixed meaning attached to them.

This settled, the 5 categories or primitive notions of general logic with the inclusion of arithmetic are those which form the upper line in the following set:

1) $\left\{ \left| \overline{=} \right| \left| \dot{\Pi} \right| \left| \overline{} \right| \left| \breve{} \right| ; \right|$

—the two first ones, as may be seen, being doubly represented, the

second one even trebly, whereas the multiplication point (between letters) may as well be omitted, the result being a juxtaposition.

The first, being the well-known sign of equality, is in general logic to be interpreted in a much more restricted sense than in mathematics, viz., to mean *identity* or sameness; its equivalent 1' (a "one" with an apostrophe,—I pronounce it for shortness: one-ap), puts forth the same category of identity as a relative term, destined to represent the class of things that are "equal to-" or "identical with-", which sign sometimes also may be translated simply by the word "itself" = selbst = le même = lo mismo.

The second or multiplication point is used in general logic—wholly independently of its arithmetical meaning—to express the category of *intersection*, Schnitt, since its office is always to denote that which is *common* to both the terms joined (and separated) by it. The Π is then, analogically as in arithmetical analysis, employed for indicating "identical products" resulting from the operation of such intersection. $a \cdot b$ or ab means: what is (at once) *a and b*.

Our third category, to be represented by an *overstroke*, is the well-known logical operation of denial or *negation*. The sign—to speak more exactly—is intended to indicate its result, the negate. If a means anything, then $\bar{a}$ denotes what is not-a. Evidently negation is a primitive notion or category, incapable of experiencing a formal definition. In lieu of the lacking definition, the so-called logical "principles" of contradiction and excluded middle step in to fill the gap. And by the bye be it said that similarly all principles of Logic as well as of Arithmetic would prove on examination to be mere substitutes for definitions (Peirce) and do not bear the character of axioms at all. (As is generally recognised, not every thing from the outset can be defined, since every definition has to rely on previous other notions, or categories already given.)

Our fourth category, represented by a crescent (to be placed over any letter), is that of conversion: if a means cause of-, then $\breve{a}$ (a-converse) will denote effect of-, when c denotes child of, then $\breve{c}$ is to denote parent (i. e., father or mother) of-. I purpose to return to this point.

The fifth category, which I represent by a *semicolon* (Strich-

punkt), is that of *relation* in general; the usual translation into words, of our semicolon being the particle "*of*," equalling "von," same as "de," the well-known predicate of nobility. If a = amans means lover and b means benefactor, then $a;b$ denotes: lover of a benefactor. The operation consisting in the use of this sign is called relative multiplication or composition.

These five categories and their seven signs essentially suffice to embody all the fundamental notions of Logic and Arithmetic,— as will be seen afterwards: I shall have to justify this apparently very daring assertion at least to some extent here in detail.

But if theoretically they prove sufficient, in practice it will not answer to restrain ourselves to their exclusive use. In order to avoid extreme cumbrousness, to secure the benefit of terseness or brevity and to facilitate clear surveys, also out of regard to symmetry, we are compelled immediately to supplement the foregoing system of juxtaposed signs.

The following three lines show how the 18 symbols of the succeeding set, which are forming our complete system of denotation (in general Pasigraphy), reduce to our five categories.

11 supplementary definitions:

$$2)\begin{cases} 0=a.\bar{a},\ 1=\bar{0},\ 0'=\bar{1}',\ a+b=\overline{\bar{a}.\bar{b}},\ \Sigma a=\overline{\Pi\bar{a}},\ a\dagger b=\overline{\bar{a};\bar{b}}, \\ (a\preccurlyeq b)=(a=a.b),\ (a\nleqslant b)=\overline{a\preccurlyeq b},\ (a\subset b)=(a\preccurlyeq b)\cdot(b\nleqslant a), \\ (a\dotplus b)=\overline{a=b},\ (a\not\subset b)=\overline{a\subset b}. \end{cases}$$

The 18 signs:

3) $0,\ 1,\ +,\ \cdot,\ \Sigma,\ \Pi,\ 0',\ 1',\ \bar{},\ \breve{},\ (^{\breve{}}),\ \dagger,\ ;,\ \preccurlyeq,\ =,\ \subset,\ \nleqslant,\ \dotplus,\ \not\subset.$

Let us deal with these rapidly.

By the first of these equations is defined the logical notion of *Nothing*, which in general Logic is to be denoted by the cipher naught, 0. Whenever the need should arise to use the same sign for the *number* naught or zero, very much to be distinguished therefrom, I prevent their being confounded by putting a dot over the latter: $\dot{0}$. "Nothing" is here defined as that which is at once a and not-a, no matter what a may mean.

The next equation defines "*something*" as not-nothing. This notion comprises everything of which it is possible to speak, the Thinkable, and the sign 1 (one) thus is to represent in general

Logic the Totum, the notion of *All*, the Whole, der Denkbereich, say the "Universe of discourse." This also may occasionally be further restricted for the purpose of any special investigation. For preventing its sign from being confounded with the *number* one (1) as only can, and seldom will, occur in researches of a mixed character, both logical and arithmetical, it is my practice in the latter case to put a dot over it. (Similarly in such a case I employ the sign $\times$ for indicating arithmetical multiplication and a larger $+$ for the arithmetical addition.)

The third equation 2) defines the relative term "different from" or "other than-" as being not identical with-, and introduces for designating it an apostrophised naught, to be spoken naught-ap. If this relation is to be stated *between* two terms, it is already customary (in German mathematical periodicals) to express it by a sign of equation cancelled by a down stroke and thus negatived in effigy, $\neq$ thus meaning unequal—see the definition last but one.

The fourth and fifth equation define the "identical *sum*" or logical aggregate (Inbegriff, Gesamtheit) to be denoted in general Logic by the signs borrowed from Arithmetic + and Σ. $a+b$ is here to express that which is not at once not-a and not-b; id est: what is either a *or* b, perhaps both.

The sixth equation 2) introduces a sign $\dagger$ "plus with a scorpion tail to the left" that I pronounce with the Italian word for +, viz., as più, for designating a relation very strange to ordinary thinking: a relation hitherto without a name. $a \dagger b$ is to represent that which is not a not-a of a not-b, and this amounts to: an a at any rate of everything but b's (no matter, whether it is an a of b's also, or not). The operation of connecting a with b by means of this sign $\dagger$, which thus results in the formation of the notion $a \dagger b$, is called *relative addition*. The introduction of this apparently somewhat intricate unfamiliar notion is dictated by a regard for symmetry. In Logic whenever a class a is formed, the same interest as to the individuals *within* is due to those *without* this class, i. e., to the not-a. There is a duality of notion (dualism) between "containing" and "being contained in," $\Rightarrow$ and $\Leftarrow$ — see further on. Thus the $\dagger$ relation corresponds to the category *of* (;) exactly

in the same way as product and sum or the . and +, as the particles *and* and *or* correspond with each other, surely none of which could be missed. To give an example at once, if t means Teiler, divisor of-, and if we restrain the Universe of discourse to the common numbers, then $t\dagger 0$ will express: what is a divisor of every number, save nothing or no number, and this simply means: a divisor of every number. Such indeed is the numerical unit, the number one, and none other.

Our next definition introduces the all-important notion of *implication* or *inclusion*, the being *contained in-* as a *part* anyhow (that is may-be as a *proper* or genuine part, echter Teil, or may even be as the whole itself). The implication or subsumption $a \in b$, to be read as "a is contained within b," or "a is part of b," appears to be explained here by: a is identical with that, which is at once a and b. My implication sign $\in$ (in German to be read "eingeordnet") generally translates the copula "*is*," "est" of a categoric statement, and also, when placed between statements a and b, presents itself as the sign of inference or illation: for though the conclusion is in a certain sense *implied by* or *involved in* the premises, however *conversely*, if b follows from a, the class of occasions when a holds good, will be contained within the class of cases where b holds. The subsumption $a \in b$ then may be read as: whenever a is true then b is true.

The next definition only introduces the denial of the foregoing relation: being not contained in-, (I need not enlarge thereon) in the same way as the last definition introduces the denial of the one we only have yet to discuss.

In the remaining definition 2), also an important one, is explained the relation of being contained in- as a *proper* part: a is contained in b as such, $a \subset b$, whenever a is contained in b, whilst b is not contained in a (or is other than b).

This again settled so far, we are in possession of and we command the complete denotation-system of general Logic, which consists of these eighteen signs 3), henceforth rendered legitimate for the use of Pasigraphy by their reduction to the five categories.

The system of denotation expounded is that which has natur-

ally arisen from the profound and persistent investigations, extending through nearly half a century, of men of the genius of DE MORGAN, BOOLE and most of all of one of the keenest American thinkers MR. CHARLES S. PEIRCE.[1] In working over his theory at large I have but slightly and never without intrinsic reasons, modified his (or Boole's) denotations, deviating only *slightly*, at least as compared with the divergencies shown by every system of denotation that derives from other sources, especially that of Signor PEANO and the Italian school. I shall call the former for simplicity's sake "Peirce's system" (omitting the addition "as modified by me"). For the benefit of those who are already familiar with the symbolism of the latter (Peano) and his most numerous, active and skilful adherents it may at once be stated that our signs

4) $\left\{\begin{array}{c} 0,\ 1,\ +,\ \cdot,\ \Sigma,\ \Pi,\ \bar{a},\ \in \\ \text{correspond to the } \wedge,\ \vee,\ \cup,\ \cap,\ \cup',\ \cap',\ -a,\ \varepsilon,\ \supset \text{ of Peano.} \end{array}\right.$

By the way, since the signs Σ (and Π), as is well known, have to serve as the bearers, scaffolding, support, *frame* for the shifting suffix (Summationsvariable), which is to pass through a series of values, and besides for the limits (upper and under) of that sum or series, the substitutes above given by Peano for these Σ and Π appear to be chosen still less happily, than if in arithmetical analysis we should propose to replace the Σ, Π, generally in use, by $+'$ and $\times'$. Such an "emendation" turning out to be but a deterioration, would in German be ironically styled: "eine Verschlimmbesserung."

Touching the essential divergence, that Peano's denotation system lacks our fifth category "of," the most important of all, and that in consequence it cannot show any signs corresponding to our relative operations ($\dagger$ and ;), I shall have a few words to say further on.

Now the *calculus ratiocinator* ruling, nay governing, our categories and fundamental operations, to the laws of which these primitive elements of thought are of necessity subject, is none other than Peirce's "*Algebra of Relatives*," a discipline (branch of science)

[1] Not, however, infallible, as will be seen on a future occasion.

crowning the edifice of the "Algebra of Logic" and comprising as well the statement-calculus as the class-calculus—both as very subordinate parts.

Almost everything may be viewed as, or considered under the aspect of, a (dual or) *binary relative*, and can be represented as such. Even statements submit to be looked at and treated as binary relatives. Classes, assemblages (Mengen, ensembles) or absolute terms may be thus presented.

And since in ordinary as well as in scientific thinking the relative notions by far prevail over the absolute ones, which latter, over and above, are eventually comprised in and superseded by them, it is evident, that the Logic of the relative notions, Relatives, must form the indispensable base and underlie every successful attempt at Pasigraphy.

In the fact that traditional Logic so long confined itself to the absolute notions with the meagre categories of "all," "some," and "none" is to be perceived an essential cause for its stagnation, that undeniable standstill, which yet entitled KANT in his time to make the assertion: that during the two thousand years since ARISTOTLE Logic had not accomplished any real progress. This would now no longer accord with the facts.

And as for the present time, it may warningly be said that whosoever, while aiming at our logical ends, tries to erect the building on a narrower ground than that created and offered by the De Morgan-Peirce theory (which reposes on the general notions of relation, Relative and composition), such as for instance would be furnished by the introduction and admission among the categories merely of the notion of "function," or say of "transformation," or else of "(one to one) correspondence"—these altogether being by far more special, and only particular cases of that general notion of Relatives—whoever contents himself with logograms for any of such special notions will preclude himself from participating in and benefiting from the above already highly developed theory; he will bar, nay block, for himself the way to expeditious progress.

Let us now illustrate the scope and purport of our novel Logic of Relatives, and therewith demonstrate, at least to a large extent,

the sufficiency, here claimed, of the set of our five primitive notions 1) for building up the complete body of the fundamental notions of Arithmetic. I shall therefore put before the reader, arranged in several groups, the pasigraphic representation and definition of not a few of its most essential notions—to be aided by subsequent remarks.

5) (a is a *class*, assemblage, collection, *set*, an absolute term, Gebiet, System, Menge, ensemble, insieme) $= (a; 1 = a) =$
$= 0 \dagger \breve{a} \dagger a \dagger 0.$

6) (num. $a = \dot{0}$) $= (a = 0) = 0 \dagger \bar{a} \dagger 0.$

7) (num. $a = \dot{1}$) $= (a$ is an *individual, element*, constant function, may be a single number) $= (0'; a; 1 = \bar{a}) =$
$= (0'; a = \bar{a}) = (a \nleqslant 0'; a) = \breve{a}; (1' \dagger \bar{a}).$

8) (num. $a = 2$) $=$ (the set a is a couple, *pair*) $=$
$= (0' a \breve{a} \nleqslant 0'; a 0') = \breve{a}; 0' \{1' \dagger (\bar{a} + 1')\}; a,$
which is contracted from
$\Sigma_{ij} (i + j)(i + j \nleqslant a) \Pi_h \{(h + i)(h + j) \nleqslant (h \nleqslant a)\}.$

9) (num. $a > 3$) $= (0' a \breve{a} \cdot 0'; a 0' + 0) = \breve{a}; 0' (0'; a 0'); a.$

10)
(num. $a =$ num. b) $=$
$= (\breve{a}; a = \breve{b}; b)(\breve{a}; 0'; a = \breve{b}; 0'; b) \{\breve{a}; 0' (0'; a 0'); a =$
$= \breve{b}; 0' (0'; b 0'); b\}$ . . . . . .
$(\breve{a} \dagger a = \breve{b} \dagger b)(\breve{a} \dagger 1' \dagger a = \breve{b} \dagger 1' \dagger b) [\breve{a} \dagger \{1' + 1' \dagger (a + 1')\} \dagger a =$
$= \breve{b} \dagger \{1' + 1' \dagger (b + 1')\} \dagger b]$ . . . . . .

11) (a is gleichmächtig, *of equal might with*, b, according to Herrn G. Cantor's terminology: a is "equivalent" b) $=$
$= (a \sim b) = \sum_{z} (z; \breve{z} + \breve{z}; z \geqslant 1')(b = z; a)(a = \breve{z}; b)$

12) (a is $\overline{\infty}$) $=$ (the collection a is *finite*) $=$
$= \prod_{z} \{(z; \breve{z} + \breve{z}; z \nleqslant 1')(a \nleqslant \breve{z}; a) \nleqslant (a \nleqslant z; a)\}.$

13) (a is ∞) $=$ (the set a is "*actually infinite*," transfinite) $=$
$= \sum_{z} (z; \breve{z} + \breve{z}; z \nleqslant 1')(z; a \subset a \nleqslant \breve{z}; z; a).$

14) (f is a *function*) $= (f; \breve{f} \nleqslant 1' \nleqslant \breve{f}; f).$

15) (s is a *substitution*, permutation) $= (s; \breve{s} = 1' = \breve{s}; s).$

16) (i is an a of j) $= (i \nleqslant a; j) = a_{ij} = \breve{i}; a; j$
—i, j representing individuals, compare 7).

17) { (The set a is put in *simple order* according to the principle x)= $=(x\,;x \notin x=0'\,a\,\breve{a}\breve{x})$.

18) { (The whole universe of thought is marshalled in a simple order, in a file or succession by x) $=(x\,;x \notin x=0'x\breve{x})$.

Dwelling for a moment upon the above, we shall here perceive represented and defined through the medium of the fund or capital[1] of denotation hitherto secured, quite a series of notions, fundamental for Arithmetic and Mathematics in general.

Before considering some of these in detail, a few remarks are required.

From 5) until 9) and at 16) I have, as concluding term, given the definition itself also in the shape of a binary relative. These then are "prominent (ausgezeichnete)" relatives, being only capable of one or other of the two "truth-values" (or "absolute moduli") 0 and 1.

The "*class*, assemblage, system, collection or *set*" having been defined by 5), I did not, from the middle line of 7) onwards, explicitly state that a, and may be b, ought to represent assemblages or classes, leaving this to be tacitly understood for fear of overloading the formulæ.

We next hit upon the definition of the lowest *natural* (i. e., positive integral) *numbers* $\dot{0}$, $\dot{1}$, and 2. Verbal Logic has hitherto proved incapable of defining even the casus singularis.

It is, of course, not practicable to enter upon the explanation and establishment of all these definitions one by one. I should like, however, as an example which can be easily understood, to point out the genesis of the definition of the number 2. The last line of 8) literally shapes into expression: There is an element i and again an element j ("another element"), differing from the former, such that (both are) each of them is contained within the set or assemblage a, whilst every element h differing from the one and the other i, j will not be contained within a. Evidently this is indispensable and sufficient whenever the set a shall consist of ex-

[1] "Capital" is here to be taken in the sense of Adam Smith and Political Economy.

actly two elements. But according to the rules or Laws of the Algebra of Relatives, as developed in my book, the preceding prolonged intricate statement easily *condenses* into the forms given above it. Eventually there is but an expenditure of say six letters to be spent on defining "a pair" or the casus dualis. I wonder whether that can be styled waste!

In 11) besides the (relative) notions of "*equal might*" (between sets) you may observe as being pasigraphically defined the notion of "*Abbildung*" or one-to-one correspondence, the latter standing behind the Σ. That is to say: the sets a and b are to be called of equal might (multitude), whenever there exists a relative z which in that sense *images* (projects) the one set on the other.

12) gives the definition of *finiteness* (of a set). This, in accordance with Peirce, may be given independently by expressing the fact, that in passing from one to another through the elements of the set one must necessarily come back to an element already passed.

13) gives the definition of *infinity*, likewise independently in the usual manner: as the quality of the set to be capable of being imaged (projected) on a proper part of itself.

Both notions can be shown (by mere calculation) to be but negations of each other, their definitions being contraposed to one another.[1] Neither of the two definitions exhibiting or containing the least particle of negation, they furnish a good example for illustrating the falsity of the doctrine, still current among professional philosophers, of a distinction being logically possible between notions or marks (Merkmale, notae) positive and negative in themselves. I challenge any one of them, including Mrs. Franklin-Ladd (compare her review of my Vol. 1 in *Mind*), to decide which of the notions "finite" and "infinite" is the positive one and which the negative, whilst for such decision supplying reasons that appertain to the domain of Logic.

10) gives the explicit condition for equalness of number, i. e., for the fact that two sets a and b contain the same number of ele-

[1] See my papers in the *Nova acta Acad. Leop. Carol.*, Vol. 71, 1898.

ments, or that within each *equally many* individuals may be counted. This, of course, presupposes the finiteness of both sets.

The condition is set out as an infinite series of partial conditions, and in the shape of a *relation between both sets*. It may well be seen therefrom how well-founded is Herrn DEDEKIND'S remark: that the notion of the "number" of things is wrongly believed to be a simple one.

Into 17) the notion of the "simple *order*" has pasigraphically condensed itself from the marks that the Signori VAILATI and BURALI-FORTI have pointed out one by one, endeavoring to invest them with and dress them in the symbolism of the Italian school—a symbolism apparently not equal to such tasks and no match for our pasigraphic symbolism, supported as that is by so powerful a discipline as Peirce's Algebra of Relatives. It reminds one of stenographic briefness to notice that for a full investment and adequate expression the statement 18) an expenditure of only five letters is needed. Nevertheless, every person versed in relative Logic can read therefrom *all* the qualities of a simply ordered Whole, either whilst skilfully deducing them by conclusions to be drawn of necessity, or even at first sight, by mere inspection. Of course, supposing a flourish of any kind to be made, such merely shorthand logogram ("Schlüssel") would easily beat in briefness our pasigraphic expression, but then that which is most valuable in the latter, i. e., the fact (last mentioned) of its containing visibly condensed within itself all the marks of the notion to be represented by it, and therefore of its being capable to yield them again at any moment, would be forfeited.

With respect to the notion of "order" and its different "types" it would be well worth while to enter and enlarge upon the pasigraphic representation of the many notions with which Herr G. CANTOR has here enriched Science. We might, for instance, next show that the postulation: "there exists within the set a, ordered by the principle x, an element of lowest range" presents itself thus $a \Subset 0'\breve{x}; a$, and that $a(\breve{x} \neq 0)$ is the expression of this "initial" element, and so on. But the time at our disposal will not allow me to continue in that direction.

Similarly as in the foregoing we could now also pasigraphically define the statement

19) (num. a = num. $b + \dot{1}$).

One would thus for the realm of numbers succeed in constituting a certain Relative:

20) g, = by $\dot{1}$ greater than-

by means of which, though not very simply, is to be represented also the Relative:

21) t = Teiler von-, divisor of-,

or else, if it be preferred, this one: $\breve{t}$ = multiple of-, Vielfaches von-.

Then we shall have:

22) $\dot{1} = t \mathbin{\downarrow} 0, \quad \dot{0} = \breve{t} \mathbin{\downarrow} 0,$

and again, for example:

23)
r = (relatively prime with-, teilerfremd mit-) $= \breve{t} \mathbin{\downarrow} (\dot{1} + \bar{t})$,
(m is prime with n) $= (m \nleq r; n) = \breve{m} \{ \breve{t} \mathbin{\downarrow} (\dot{1} + \bar{t}) \}; n$,
Prime number $= (1' + \breve{t}) \mathbin{\downarrow} \dot{1} = (t + r) \mathbin{\downarrow} 0$,
(Greatest common divisor of m and n) $=$
$= t; m \,.\, t; n \,.\, \{ \breve{t} \mathbin{\downarrow} \bar{t}; (m + n) \}$,
(Least common multiple of m and n) = idem, $\breve{t}$ in lieu of t.

And thus to be continued at pleasure. With these and suchlike forms it is possible to *calculate*, and inferences regarding the notions they represent, may be drawn and extracted from them. This latter could not be effected with mere shorthand logograms, such as is for instance Peano's $D(m, n)$ for the notion next to the last in 23).

The notion of absolute prime number being doubly represented above (for the realm of the whole numbers), the first representation states: prime number is a number which stands to each number, except the $\dot{1}$, in the relation of either being identical with it or being no multiple of it. The second states: prime number is what to every number (without exception) stands in the relation of either being a divisor of it or being relatively prime with it. And, on the strength of the pasigraphic structure (not here given) of the Relative t itself, either one of these two representations will be capable, moreover, of being transformed into the other.

For the sake of throwing a momentary glance on topics other than Arithmetic in this place, supposing the universe of discourse 1 to mean Space, the definition of a geometrical point may be given:

$$24)\begin{cases}(z \text{ is a } \textit{point}) = (z \neq 0) \prod_u \{(z \nleq u) + (z \nleq \bar{u})\} \\ \text{or, in another form (after Peirce)} = (z \neq 0) \prod_u \{(u \subset z) \nleq (u = 0)\}.\end{cases}$$

In its first shape our definition settles the "point" to be such a part of space, differing from nothing, which to any part u of space stands in the relation either of being wholly contained within it, or being wholly without it, that is to say, being wholly contained within the remainder of space $\bar{u}$. I leave to the reader the interpretation of the second form of definition, which has been already reduced by me to the former in my Vol. 2.

Finally a word anent the Pasigraphy of human *relationships* embracing as well those of consanguinity as those of affinity and forming no unimportant chapter in the *corpus juris* for the student of law. In addition to a few of the signs of General Logic above set out, there are only requisite *two* specific symbols of Relatives, for representing discriminately and exhaustively all these relationships in the concisest possible shape. These two are:

$m = \textit{male}$ (an absolute term),

and

$c = \textit{child of-}$ (a relative one).

Mankind consisting of two sexes then $\bar{m}$ = not-male will denote female, and $\check{c}$, as before mentioned, will equal "parent of-." The universe of discourse $1 = m + \bar{m}$ then consists of the Persons of human society in the Past, Present, and Future. However, for rendering fully accessible to our pasigraphic system also the relations of affinity (i. e., those by marriage only), to every childless married couple must be ascribed one "potential child." True, that for completely realising the ideal of Pasigraphy it might be demanded that, again, the notions "male" and "child of-" themselves should be reduced to primitive notions of a simpler breed. But such a thing might only be hoped for when Zoölogy and Physiology should have developed to a much higher degree of perfection. Meanwhile something yet is to be won if we plainly admit these two notions m and c as primitive notions and henceforth use them as building stones.

Then the following will be the pasigraphic representation of sundry relations:

25) $\left\{\begin{array}{l} \text{(Maybe only half-) brother or sister} = 0'.c;\check{c}, \\ \text{Full brother or sister (Geschwister)} = 0'.c;m\check{c}.c;\overline{m}\check{c}, \\ \text{Fullbrother} = 0'm.c;m\check{c}.c;\overline{m}\check{c}, \text{ Full sister} = 0'\overline{m}.c;m\check{c}.c;\overline{m}\check{c}, \\ \text{Stepchild} = \check{c}.c;\check{c};c, \quad \text{Father} = m\check{c}, \quad \text{Mother} = \overline{m}\check{c}, \\ \text{Consort} = 0'.\check{c};c, \quad \text{Husband} = 0'.m\check{c};c, \quad \text{Wife} = 0'.\overline{m}\check{c};c, \\ \text{Nephew or niece} = c;0'(c;\check{c}), \quad \text{Mother-in-law} = \overline{m}\check{c};0'(\check{c};c). \end{array}\right.$

All these multifold connexions have been most profoundly studied by Mr. Alexander MACFARLANE who has, for instance, answered the question: which relationships (being of the second degree) are excluded (prohibited from existing) by the English Law that forbids a man to marry his deceased wife's sister. With such-like expressions as those already given any kind of problems may also be solved mechanically, by mere calculation, as, for example, this: a lady, questioned about a photograph in her album, replies: "you know that I have no daughters. Well, this person's daughter's son is the father of one of my grandchildren." How was the original of the portrait related to the lady?

Macfarlane, however, because of his repudiating Peirce's Algebra of Relatives, or at least abstaining from its use, did not clear a certain reef. Whereas in the expressions by him established, that yet are somewhat different from the above, he did not succeed in excluding their "reduced meaning"—as he chose to call it.

The gist of the situation may already be clearly perceived in the well-known riddle for children: My father has a son who still isn't my brother; who is it?

The "reduced meaning" of child of the parents of somebody is this somebody him- (or her-) "*self*" (1'), and therefore the supplementary appending of the sign $0' =$ "another than-" to $c;\check{c}$ is indispensable for correctly forming the notion of brother or sister.

Turning from these special investigations of English origin and leaving untouched several isolated attempts (as for instance that of Herr FREGE, who heedless of anything accomplished in the same direction by others, took immense pains to perform what had already been much better done and was therefore superseded from

the outset, thus delivering a still-born child) save the fundamental work of Mr. PEIRCE in the United States and his German and English precursors among whom BOOLE and DE MORGAN deserve first mention, the aims of Pasigraphy hitherto have found assiduous promoters only in *Italy*.

The meritorious periodical *Rivista di Matematica*, edited for five years by the eminent mathematician Signor PEANO, our chairman on this occasion, together with the supplementing *Formulario*, are mainly devoted to its purposes. And in this and other periodicals through a group of keen Italian investigators quite a series of branches of Analysis and Geometry has been worked over with pasigraphic intention and enormous application. All that can be done with the Boole-McColl "calculus of equivalent statements," and that is certainly much, appears almost wholly to have been thereby accomplished—though, regrettably, in a greatly diverging system of denotation. On the other hand, in its general features the present phase of the Italian pasigraphic movement is characterised by the non-use hitherto of Peirce's Algebra of Relatives. Against turning the latter to profitable account the denotation system adopted by the Italian school indeed seems almost to form an obstacle. Their capital of denotation lacks the most general primitive notions, which in the Algebra of Relatives already exist and are tolerably well investigated with respect to the rules of their combination. For these missing categories numerously invented and arbitrary logograms (occupying 5 printed pages of Peano's *Table des signes* and still on the increase) prove insufficient substitutes and are but poor makeshifts. To conclude here, in short, I may venture to apply to them the parable, put forth by Professor MINKOWSKI in his address when introducing the proceedings of our Section, concerning those who persist in still using sailing ships whilst steamboats have already been invented, constructed and are waiting at their service.

If I have successfully shown how with the same means the notion of infinity and of the greatest common divisor, equally well as that of mother-in-law, can be expressed, then surely it will be admitted that Pasigraphy has now indeed emerged from the status

nascendi and that its ideal must have been realised at least to some extent.

In the cases—ever rare—when humanity has succeeded in essentially realising an ideal, as a rule its subsequent aspect will widely differ from the form in which it hovered before those who conceived it first. So in this case. Already we can say thus much, that Leibniz's prediction: "scriptura haec universalis aeque erit *facilis* quam *communis*" is scarcely likely ever to be fulfilled, and that Descartes's hope, that by its aid a peasant would then gain a deeper insight into things than is now possessed by a philosopher, will probably never be realised.

It is in the *calculus ratiocinator* that the difficulty lies! The higher parts of Logic present such an abundance of problems ranging among those of the very highest degree of intricacy, and mastering the Algebra of Relatives—accessible only to serious workers—is so little easy to attain that it may well never become common property, always remaining the privilege of but a few favored thinkers.

In conclusion, and returning once more to the 5 primitive notions 1), I have permitted myself, in selecting them, to be led by regards of convenience for the purposes of my lecture. I have been very far from implying, however, that their number may not possibly be further reduced. As a matter of fact our "category" of conversion seems—by means of the definition

$$(i \nleqslant a\,;j) = (j \nleqslant \breve{a}\,;i)$$

wherein i and j in the sense of 7) represent individuals—itself to be reducible to the *four* remaining primitive notions, provided only that the whole set of the "Definitions" be systematically arranged in a proper manner.

Then the "four elements"

same, and, not, of

or identitas, intersectio, negatio, relatio,

in intimate association will both form life and sustain the world intellectual.

ERNST SCHRÖDER.

KARLSRUHE IN BADEN.

THE SOCIAL PROBLEM.[1]

(CONCLUDED.)

WE HAVE now to recapitulate the principal propositions that flow from the developments which we have given in the preceding part of this discussion.[2]

(1) Nature is an unconscious mechanism; she is indifferent to the phenomena which take place within her domain and to the creatures which live there; and man is neither more nor less than other animals. But man happens to possess an advantage over animals, and from this superiority he derives all the benefit that he can. During the time that he lives, his concern for his conservation and happiness is his whole care. He has an ego which protects him against his own weaknesses, over which his reason and sentiment have not always full control. A very large number of his acts are unconscious. Society is a means of existence devised and exploited by man,—a means upon which he counts for increasing his power, for diminishing his sufferings, and for obtaining the greatest possible amount of satisfaction. Insensibly society has been transformed into a corporation which embraces both the present and the future.

(2) Societies have sprung from two sources: from the family, the members of which staid together; and from indifferent assemblages, which were at first altruistic and were afterwards based on interest. External defence was the first stage; internal defence the second. The progression was accomplished by force of circum-

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[1] Translated from Dr. Topinard's MS. by T. J. McCormack.

[2] See the July *Monist*, pages 556–595.

stances without agreements of any kind. Contracts did not arise until later and then partly in consequence of some combat or crisis. Such was the case of the English barons and their followers forcing upon King John the Magna Charta of 1215, and such, too, was the case of the Pilgrims of Plymouth Rock in forming a constitution when they took possession of the land granted to them by James I. The "contract" of Spinoza and Rousseau is a mere theory, but nearer to the truth than the "living organism" of the positivists. In every democratic society there is a virtual pact of some kind between the two contracting parties: society has its duties to fulfil towards individuals, just as individuals have duties to fulfil towards society, or towards their fellow-beings—two equivalent terms, for society is the aggregate of one's fellow-beings. But to-day the contract tends to become more formal; the drift, now, is to submit not only the constitution but even the chief laws of the legislature to the sanction of a referendum.

(3) Societies have evolved empirically according to circumstances and individuals, or, to use a phrase of the day, according to the principle of *laisser aller*. Individuals, by nature very different, have played their part conformably to their special organisations, the strongest causing all things to centre about their personal interests, a small number only zealous for the interests of all. The results in different directions have thus only feebly responded to the end for which society was established, and if among these results selection, which operates with things as well as with animals, has made for the profit of the most prosperous societies, the reason for it is that nature never loses control of her rights, and always gives her sanction and justification to the most powerful.

Among these results there are many that are good. These are, for example: that permanent form of association, lasting from generation to generation, analogous to a stock-company, which compels the society to shape its action with regard to the future as well as the present of the species; the hereditary capital which is its result, which is exploited for the greatest welfare of all, and the profits of which must therefore be distributed with equity; the softening of manners; the pleasures of the intellect, reckoned

among the most desirable of superfluous needs; in fact everything which may be recapitulated in the phrase "the progress of civilisation."

But there are evil results, too. For example, that horrible militarism to which external defence still forces us, and which, when war breaks out destroys at a blow all notions of morality. Then that internal scourge which comes from the results of the struggles of ancestors being perpetuated among their descendants, and from our being responsible not for our own conduct, but for that of our forefathers. Next the division of society into strata, the higher enjoying from birth a position and wealth which exempt them from all effort, the lower frequently conquered before they have fought, and predestined to misery and suffering. I have already spoken at sufficient length of the condition of the lower classes. I will but add a word. Whilst among the favored classes the family is the sanctuary and the focus of all joys, among the proletarians of Europe it has been almost totally obliterated. The father and mother labor, each in his sphere; the latter is unable to give to her child that initial education which is so decisive for the whole of life; frequently she is obliged to place her child in a foundling asylum; the boys and girls of more advanced age are scattered in the workshops, or roam the streets exposed to all sorts of bad examples and temptations; even at night they scarcely come together and make the acquaintance of their domestic hearth.

(4) The method of life in common was adopted by man with a view to increasing his means of action, and affording to his faculties the fullest capacities of development in the direction which claims his nearest interests. He seeks in this way to free himself from the performance of certain general services which naturally fall to the lot of all, and which would distract him from his immediate occupations. He desires to work out his own happiness in his own way, to be responsible for his acts, and also to enjoy the fruits of his responsibility. Society, therefore, is bound to allow him a maximum of liberty in order that he may have a maximum return; its reason for being would be annulled if the individual were lessened by the social state.

(5) Now it is by competition or struggle alone that the individual achieves his fullest value and finds the employment in which his faculties are best utilised. It is in struggle that the higher individual variations of which we have spoken find their fullest expansion, and that the mean variations, and possibly also some of the lowest, are either heightened or are put to use under conditions which are suitable to them. Society cannot think for a moment of eradicating struggle. From its own point of view as desiring the welfare of all, or as a commercial and industrial association working a capital and obligated to declare dividends, it ought even to encourage it. The over-production of all things necessary to material life, to welfare, and to intellectual enjoyments, which are the result of the labor of individuals, redounds to the profit of the whole social mass. The activity engendered by the struggle, selection wanting, is the agent which perfects the species. Hitherto that activity was restricted to certain classes, the lower had few needs and produced nothing beyond what was actually necessary. Now this activity is extended; every one wishes to have his share of the superfluous satisfactions. We have seen that it is not absolutely certain that intelligence has increased since antiquity; the reason for this probably is that this activity was partial and poorly directed. To-day, when it is becoming general and is growing in quantity, it is impossible not to encourage it. Struggle, of which the results are no longer sanguinary, but lead to more or less welfare and satisfaction according to the activity employed, is the highest necessity both for the individual and society.

6. There are philanthropists who would replace struggle with peace and universal fraternity. Instead of the formula of physiological justice,—viz., "to each one according to his faculties, his deserts, and his works," three synonymous terms as here used,—they say, with their metaphysical conception of absolute justice, "to every one according to his needs," that is to say: to the indolent, lazy individual who shirks work, as much as to the active, useful individual who produces more than he needs, who, it is true, enriches himself but at the same time enriches the mass of his fellow-beings. This would be absolute hypothetical justice,

clashing with the only demonstrated justice, the only one having a claim to the title of natural justice. For these philanthropists the ideal of society is that of a great family of which the members are closely joined and solidary, as in completely unified animal colonies, enjoy all their liberties without restraint, share all things with all, live each according to his own tastes, and satisfy all alike their immediate and superfluous desires, all the peers of the others. But this programme is self-contradictory in certain of its parts, and it is contradictory to nature, the individual, and the social idea itself. It is a Utopia impossible to realise even in the most distant future, and as a whole not even desirable. It is equality pure and simple. Establish it, and in a month, in a day, in an hour, it will no longer exist. In a word, what here around me in the schools of jurisprudence is called the moral law is contradictory to the law of nature and but a fiction, a generous conception of our cerebral sensibility.

7. We have not yet stated our conclusions regarding the questions which were mentioned at the beginning of this chapter, but they are suggested in so forcible a manner that the reader has himself doubtless formulated them a score of times. The realities of nature and the necessities of life in common are irreconcilable if we refuse to see things as they really are and if we seek to model practice on absolute conceptions which have no basis but desire, sentiment, and imagination. The individual, unmodified by habits or impulses more or less unconscious, but left to his own nature and controlled only by his animal ego, recognises only his own interest and craves for liberty pure and undiminished. Society is a complexus of concessions to the common cause. The individual grants these concessions to society and keeps his contracts, but only so long as he finds profit in it, or because he is not the strongest. Whenever he reasons coolly, where there is no outlook for punishment, where there is no fear of opinion, nor of the mediate or remote effect of his conduct, his animal and egoistic nature appears. Society can only master him by force, and discipline him like a soldier in an army.

But the realities of nature and the exigencies of society admit of easy reconciliation if instead of dashing ourselves to pieces on

the two rocks of animality and the absolute, we steer between them; when we submit to accepting what we cannot avoid, for example, the organic and intellectual inequality of men and the absence of real justice; and if we do not lose from sight the definition of Montesquieu: "Laws are the necessary relations that are derived from the nature of things." This means that rules and laws, being the sanction of the best possible relations between individuals and society, should not be left to the mercy of empiricism, the caprice of a monarch, of a multitude, or of any form of universal suffrage; that they should be dictated by reason after light has been received from all possible sources; that between all the solutions which present themselves there is one which is best adapted to existing conditions and is the necessary relation sought. Jean Jacques Rousseau has defined law to be "the expression of the general will." This is not more exact than if we said, "of the will of a monarch or of a parliament"; for will may be poorly illuminated, blind, unintelligent, passionate, and in disaccord with utility as rightly understood. The "necessary relation" of Montesquieu can be determined only by a perfect knowledge of the subject by men who are carefully prepared, independent, and animated by a holy love for humanity, by men who will apply their best intelligence to seeking the solution of each problem duly studied, who will weigh the *pros* and *cons*, the advantages and drawbacks in each case,—by men versed in social science and its different branches, notably the science of law.

Evolution left to itself has yielded, as we see, both good and bad results. The latter must be amended, even if we must go to the quick. It is incumbent on man to take matters in hand himself and to direct their course. He knows the difficulties to be overcome, he knows what he has to renounce and what he has hope of obtaining. The human species in its duel with other species and with nature has won many victories. Man has but to continue his conquests and to introduce into his efforts method and logical consequence; he has found a way of appropriating certain of the forces of nature, of adapting numerous vegetable and animal species to his wants. It is impossible to suppose that he is not capable of

organising a society as he judges best and, if necessary, of transforming sufficiently his own nature.

* * *

Let us pass to the applications, in broad outlines. We will suppose a society at the stage at which our present civilisations are, of the average size, and democratic; we shall not consider others. We leave aside the United States, which was founded and developed under exceptionally favorable conditions, which did not possess the fixed routine of Europe, which adopted, at a single stroke, communal autonomy and the autonomy of states, and which is only faulty in point of federation, in embracing too many different regions, and too many dissimilar interests. What would be the functions of such a society, and what would be its attitude towards those for whose greatest happiness it was created?

The first thing which it must bear in mind is that the total mass, the general interest, alone exists for it; that the parts of this mass, the particular interests, figure only through the part which they take in the general functioning of society, and that individuals are molecules only in the pseudo-organism which it is called upon to direct. This is the principle of the unity of state, and the only way to comprehend the "Reason of State" and the Secret Funds which are admitted in very exceptional cases, in the present state of things, for the public safety. The members of the parliaments, whatever be the manner, felicitous or unfelicitous, in which they are appointed, represent the country in its entirety and not any particular circumscribed part of it. Their lot is to pass general laws which apply to the needs of the mass without stopping to consider exceptional individual cases. When their duty is accomplished, which is to grant equality to all before the law, and, more exactly, equality of advantages and disadvantages resulting from necessary laws,—they can only submit to the inevitable injustices which they here and there produce. Thousands of innocent human beings are sacrificed in case of war, and in the interior of the state, too, there are untold necessary victims of the universality of laws. The legislator has an enormous responsibility. What he decides should be accounted infallible, although he may be in error.

He must act for the best, knowing that he cannot attain perfection, however much he may be inspired with ideal conceptions. But what he should also never lose sight of is that each of the persons under his administration has in himself the sentiment of relative justice of which we have spoken, of "that which is his due," and that this justice implies the natural right to insurrection inscribed in the declaration of the rights of man a century ago.

The functions of the state are divided into essential and facultative, the first falling under three heads: (1) external defence; (2) internal defence; (3) general services.

External defence. This is of two kinds: military and economical. The former gave rise to the first societies, which for a long time remained at this stage. Unfortunately its counterpart followed —attack and then conquest. Militarism resulted, becoming a need, a passion for domination, for rapine and glory, growing worse with time and falsifying the entire mechanism of society. Even to-day it is the greatest obstacle to the serious progress of humanity. So long as the ethics practised in time of war is so violently opposed to the ethics professed in time of peace, it will be impossible to inculcate in the minds of individuals that there is but one ethics. And yet militarism is a necessary evil which we cannot avoid, a devouring cancer which we cannot cure. The first need of a nation is to defend itself and to make itself respected, in order to live. War absorbs the best wealth of a country, it decimates it, it leaves behind it nothing but ruin, it makes of man a ferocious beast. Yet despite it all, we must be ready for it. On the fatal day all the members of a society are here solidary; all devote themselves as a mass to the common safety. The state, even in time of peace, has an army to support; vessels, cannons, munition, ports, fortifications, strategic roads, hospitals, special schools, an entire administration to create, watch over, and recompense. This function alone, bearing as it does upon a large number of points, requires a complete centralisation and alone absorbs a great part of the action of the state, gives to it an excessive influence and enables it to mingle in the life of individual interests more than the principle allows. By its budget it weighs down heavily upon the nation; by its ob-

ligatory service in countries which from their geography have no natural defence, it turns from life at the decisive moment of existence the whole able-bodied masculine population. Militarism is the worst of scourges but a necessity of the times, to which we must submit.

But there is not only the war with cannons. There is another species of warfare, which has been termed peaceful, and which is conducted by its side. The extension of exchange, the facility of communications, has in modern times swollen it to such proportions that the state has been obliged to interfere and to protect its members. Economical, commercial, and industrial competition between individuals has overflowed the frontiers of nations and become international. If we consider the general interest of humanity alone the system of protection against other countries is wrong. Free exchange, the free circulation of the means of existence, drawn as water in communicating vessels to the places where they are scarcest, is the true law. When a country does not produce these means of existence, or does not produce them in the desired form as regards cheapness and quantity, it is reasonable not only that it should accept them from its neighbors, but also that it should demand them, and that in return it should furnish to them what it produces cheaply and abundantly. Protection is a device for forcing a country to be self-supporting and for creating industries of its own, for it is undesirous of being tributary to foreign markets. The reasoning is correct from a national point of view, but it proves that the sacrifices for the general welfare which society exacts of individuals in its own sphere are refused for the common welfare of humanity. It is always the question of the two schemes of ethics—one for ourselves and one for others. But there are products which one does not possess at all and for which we must have recourse to others. The United States are a new country, rich in mines of all kinds, capable of producing everything of which its people have need. They may permit themselves the luxury of dispensing with the rest of the world, for they are in the highest sense a social joint stock company. But in Europe the situation is different. The various states are obliged to supplement one another. England in its

insular condition has long since learned that it cannot with its agriculture contend on an equal footing with the remaining world and that it is obliged perforce to become industrial, trading, and distributive, as were formerly the Phœnicians, the Genoese, and the Dutch. It is in its proper sphere. But is it not incumbent also on the other peoples of Europe to band together, and upon this basis to take the first step towards the United States of Europe? At present societies protect themselves by the aid of export and import bounties, subsidisation of merchant marines, instructions to consuls, and especially by the aid of treaties which the Powers wrangle over exactly as idividuals do.

But if rival societies have hostile interests, fortunately they have also common interests, and here there is ground for understanding, which is destined, we are convinced, to assume greater and greater proportions. From this arises a host of treaties of all sorts regarding postal communications, weights and measures, money, literary property, the extradition of criminals, the establishment of sanitary regulations, and so forth. The sphere of jurisdiction of the state is, therefore, even thus far and for exterior affairs already considerable. In France, if we deduct the interest of the national debt, the budget of the exterior is alone one-half of the total budget.

Defence of the interior.—This is the second function of the state —the defence of individuals against one another, against the causes of interior calamity, and against themselves.

The first outweighs the others. It is the protection of individuals who restrict themselves absolutely to the exercise of their recognised rights and observe the laws, against those who violate these rights, trespass upon those of others, and break the laws. It embraces assault, material obstruction of one's actions, slander, etc., infringement of property rights and of the right to labor, the violation of contracts duly attested, etc. One of the sacrifices imposed upon the individual being to refrain from administering justice himself, save in cases of self-defence, society is obliged to discharge for him this function in some manner.

The second class of measures for interior defence is concerned

with salubrity and embraces measures for the prevention of diseases of men, useful animals, and plants. The third class is concerned with the protection, in exceptional cases, of the individual against himself. Evidently the individual is master of all of his acts which concern only himself; he may even commit suicide. But when he is obliged to apply to professions whose practice requires special knowledge and ability, of which he is not capable of being a judge, and which may have the gravest consequences, surely the state should come to his help and protect him against his own ignorance. Such professions are those of medicine and pharmacy, of law, of navigation, and even of civil engineering and architecture. The practice of these professions must be sanctioned by certificates or diplomas, awarded, or at least stamped, by the state. Probably the day will come when the public will not be deluded by sensational advertising and charlatanism, but that day is still far distant.

The economical protection which we saw at work abroad has its complement in the interior of the state; the one brings the other in its train,—both are to be regretted. Bounties are granted here and there for supporting national competition,—in France, for example, upon sugars and silks.

By the side of these is seen another species of economical protection which is absolutely condemnable, and which cannot be explained except by the personal bias and interests of legislators which ought never to exist. I refer to the special protection of some one industry, some one region, some one group, or even some one class. It rises from the arbitrary and unequal imposition of taxes, made either through partiality or ignorance.

This brings us to the reverse aspect of the protection of individuals, to the total abstention of the state from everything which constitutes a private act, from everything which bears upon the normal course of life, and to that fierce struggle which must leave individuals to their own risks and perils.

In the face of that struggle, which we have shown to be at once legitimate and necessary from the triple point of view of progress broadly viewed, of society considered as the administrator of the common capital and the distributor of its dividends, and of the

individual seeking to exercise all his faculties and to bear the responsibility of all his acts; in the face of this struggle, in which the result is no longer selection by death but the need of enjoyment and the desire for a better position in life,—a struggle of which the effect is to disengage the higher individual variations for the general profit of the whole social mass and to furnish that employment which accords best with the average and lower variations,—in the face of this struggle, I say, the attitude of the social body is distinctly marked: absolute neutrality, the awarding to every one of a full recompense for his efforts and the leaving to him of all the consequences of his failures, however they may have come about. Relative individual justice requires this; the intermeddling of the state in the struggle would be injustice. Men are unequal by the fault of nature; society has simply to bow to the fact; all that it can do is to seek to render the combat loyal and courteous, and if possible to prevent the conqueror from absolutely crushing and destroying the conquered. Without detriment to the principle of non-intervention, it may also prohibit the struggle on the part of those who are plainly without arms, and to prepare for it those who are not so. Let me explain myself.

Society should have asylums for idiots and the insane, for congenital cripples and non-developed children. It should gather under its paternal care foundlings and orphans, assume charge of and prepare for life during the necessary period of time the children of fathers and mothers who are incapable of fulfilling this task. What it should do or seek to do is, above all, to equalise as much as possible the external conditions of the combat at the start. It is customary in a duel for the adversaries to have the same arms, the same kind of ground, the same clothing as nearly as possible, the same kind of shoes, etc. The rest is left to the valor and skill of the combatants. It should be the same in the social struggle. Birth places the combatants in very different positions: the one has capital, property, education, rank; the other has none; the one has all the chances of conquering; the other all the chances of being conquered. In a word, the sons are not exclusively responsible for their own acts; they are responsible for their fathers' and

ancestors', and for the situation in which the latter have left them. This is a monstrosity,—that which from the beginning of society has weighed down the most on evolution, as we know. But, it will be said, this is attacking inheritance, consequently the family, the right of every one to labor for his children, which is one of the most powerful main-springs of human activity. Unquestionably and precisely it is an instance of the impossibility of reconciling everything. Whatever may be the solution, justice is wrecked on the one side or on the other. There is no amelioration possible except by adopting a middle course: suppress all inheritance *ab intesta* outside of direct ascendants and descendants and of the wife and husband, that is, outside of the immediate family, and restrict in the same sense the right of testamentary disposition. Bequeathable property would revert to the state and enable the state to abolish all taxes which now press so heavily on the labor of men in society.

General services.—The department of general services is the third essential function of the state. Everything which requires the co-operation of all, upon which it would be difficult to come to an understanding, or which would divert the individual from his personal occupations implies a central direction and is the province of the state. In truth, all the functions of the state fall under this last category, excepting war, where every one may be put in urgent requisition. Such are the preparation for war itself, the exterior economical defence, the interior defence with its three principal forms, with its two organisations of police and justice, education and public aid, of which we will soon speak.

The general services to which we refer at present are highways, canals, railways, not connected with war but with the internal prosperity, with the transportation of the means of subsistence and of travellers, the postal and telegraph service, depots and markets, forests and parks reserved for general recreation, although collaterally exploited for the needs of the state, and finally the finances, which we meet with everywhere and which are the contribution of each to the common expenses, being essentially (1) a fixed part, equal for all, the non-payment of which brings on the loss of the

advantages connected with the rank of citizen; (2) a supplementary part proportional to the successes won in the struggle and to the enjoyments obtained,—that is, to one's fortune.

These services are of two kinds: the first are permanent in character and require a corps of employees of different grades, which constitutes properly the administration; the second are intermittent and are evoked by the occasions of the moment;—they may be let out by private contract, at auction, by governmental concessions, and by franchises, etc. The latter have the greatest possible extension. The rule is that the state should never compete with private enterprise, and that it should always have recourse to it unless there is some serious objection. The state, however, is responsible; in principle it performs the work, it directs its course, supervises its execution, even when it avoids direct participation. It has been proved, furthermore, that work undertaken directly by the state is more onerous, requires a longer time for its completion, and is generally less thoroughly performed; the responsibility of the state is too widely divided, or rather it is only nominal: its employees have not a personal interest in doing their work better—they take no serious risk. The work of man receives its value from the prospective remuneration, proportionate to the care which he bestows upon it, and to the perils which he fears. The proletarian who works by the day or the year does not labor as the individual does who is responsible to himself, who follows his own ideas, who knows that he has chances of losing as well as of gaining and that the good as well as the bad outcome of his labors depends upon his personal attention and activity.

The three functions of the state which we have just recapitulated, concerning especially actual individuals, are strictly speaking the only ones which are obligatory. But the state, being a permanent body having a paternal supervision over the welfare of its members, and being under obligation to look out for the morrow, an irresistible drift has extended its field of action for the better or for the worse. The material which we have to examine falls under two headings.

COMPASSION is the first. It is the sentiment of pity which so-

ciety is supposed to feel for those who suffer through its fault, or through the fault of nature. Society, strictly speaking, is not justified in this feeling: first, because not having a right to interfere in the consequences of the normal struggle between individuals or to modify personal responsibility, it is bound to abstain; secondly, because to interfere with those consequences and with responsibility is to attack the stimulus to all activity and all progress, and so to run counter to all that goes to the making of wealth; thirdly, because, if the individual has a nervous system and an apparatus of sensibility which moves him to make a matter of sentiment out of his risks and perils, to represent to himself the sufferings of others and to act as if he felt them himself, society possesses no such organisation. Society is comparable to an employee charged with a certain labor to perform, or to a manager of a business who has to think only of the dividends to be distributed,—it reasons only with figures and cannot yield to the stirrings of the heart.

Nevertheless, the fact cannot be disguised that if a community is comparable to a stock company administering a capital in the name of its stockholders, it can also be compared to a society for protection and assurance against the risks of nature. If the strong seek to lord it over the weak, the latter demand protection; the strong and young of to-day may be the weak of to-morrow and the old man of the day after to-morrow. When fathers expect children, are they certain that the latter will be favored by nature? Does not disease attack all? Therefore it is to the general interest to insure against the unknown, and nature being wanting, for society to assume the functions of providence. Furthermore, the sentiment of compassion is so imbedded in the heart of man that no voice is raised in opposition when assistance is made one of the accessory functions of society. The only difficulty is the exact measure to be meted out, a measure which it is difficult to fix as a general rule. The first consideration is not to give to the vanquished the joys to which they have not a right, and not to strip the vanquishers of the entire satisfaction of victory. Permanent or passing aid must not be converted into an encouragement to idleness or a premium upon vagabondage. We said just above that society should witness im-

passively the struggle between individuals, as did the heralds of the Middle Ages ; that it should see to it that every one on his entrance into the arena has fair and equal outward chances, but that it must be able, like the Cæsars at Rome, to stop the final and useless massacre of the vanquished. The doctrine of compassion would authorise society to do more; it would suffer her to nurse the wounded, to assuage the suffering of adversaries put *hors de combat.* It follows that the department of public aid so-called, that is to say, of hospitals for the sick and homes for adults,—for we are not speaking here of children, idiots, insane persons, and cripples,—for civil and military invalids, for widows and paupers in given cases, are legitimate. And yet, as we said in a previous chapter, many among those assisted will remark : "Why then save and work for more than our immediate needs if our morrow is assured?" I do not speak of vagabonds or tramps or of mendicants by profession ; with these it is necessary to deal severely. "The benevolent action of charity can only be compared to the harm that it does," says M. Émile Chevallier.[1] Aid is not a personal right for any individual,—this must be impressed upon the mind,—but a disgrace for the person who is the object of it. Every hand extended, every succor received, saving certain well-established exceptions, must be considered as a disgrace, must implicate the loss of civil rights lasting until rehabilitation. To reconcile all this, we shall recapitulate as follows : it is true, succor must be extended to the unfortunate, the old, the infirm, the vanquished in the struggle for existence, those whom circumstances and their natural inferiority rather than their conduct have ruined, those whom wounds have prematurely rendered unfit for the arena ; but the succor should be given with discernment day by day and be reduced to a minimum ; it should be given after inquiry, in just the necessary amount and no more. Since compassion, which nature does not possess, and individual justice, which requires that each should bear the conse-

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[1] Emile Chevallier. *La loi sur les pauvres et la société anglaise. Couronné par l'Institut.* Paris, 1895.

quences, bad or good, of his acts, are contradictory, therefore compassion should not be made a clog upon justice.

There are two systems of charity: one administered by the state; and one by private persons or associations. The two may be administered simultaneously: the first in incontestable cases—cases of the infirm and the insane without support; the second in cases which are more doubtful—as the case of those who have fallen in the struggle, etc. But there is a remark to be made with respect to state charity. Every time a supplementary function is added to the work of the state, the money always comes from the pockets of the tax-payers, and it is in reality they who perform the service. The question comes back therefore to this: will the state distribute its aid better than private persons or corporations? In the first case it is naturally the function of the county, township, or parish, and not of the central authority.

Progress is the second supplementary function of the state. In this point of view and as the heir of a physical, intellectual, and moral patrimony, from which all its members draw and which it must transmit, augmented and bettered, to posterity, society has several questions to consider. Should it, or should it not, look with favor upon the increase of its population? Should it stimulate individuals to advance in the path which sociologists declare the best for multiplying its power of production and for most justly distributing the fruits which flow therefrom? Should it endeavor to modify its customs in the most favorable direction, in the direction which gives the most satisfaction under the conditions of life in common? Should it seek to impress a definite direction upon the best habits of society, upon character, upon manners of feeling, thinking, and acting? And, in such a case, what shall be the means employed? Shall they be employed directly or indirectly, and upon what shall they be based?

The answer to the first question is not ambiguous in the present state of Europe; men are necessary for defence. But suppose war should be abolished: then an excessive population would be a drawback; men, all other things being equal, will, in a given space of territory, be happier when their number is small than when it is

large. With regard to the other questions there is much to say. I shall take but a few examples.

The right of assembling together, the right of association which flows from it, are among the rights which the French Revolution regarded as inalienable. They have given birth to society itself. It would be strange if men could not band together now as they did for the first time and under the same influences—common interest and sometimes sympathy. In our day the principle of association has been considerably extended and is the force from which the future has to expect the greatest beneficence. There are commercial associations of a small number of responsible members or of an unlimited number of mere stockholders with responsibility limited to their holdings; industrial associations for protection, circulation, or consumption; political, scientific, and religious associations; professional syndicates of employers or workingmen, associations for education, charity, sport; and hundreds of others having the most varied objects. Some are mere instruments in the struggle for existence, employed by individuals, with which the state has nothing to do but which it generally must know of, so as to assure itself that their doings are not in violation of its laws. The others have for their object various public utilities, for which the state, if these associations were lacking, would have to care,—associations which consequently a state has the best reason to encourage. Every liberty, in fine, should be granted to associations, which are a form of progress, provided they infringe in no way upon the recognised liberty of individuals. In the eye of the state they are simply collective individuals having the same rights and the same duties as single individuals.

A serious question, however, presents itself. The individual is the present social difficulty, the enemy to be adapted to the necessary customs, the element of revolt which is always disposed to substitute its own personality for that of the state. We have seen that society, in consequence of its obligation to restrict itself absolutely to the interests of its clients, is possessed, as its international relations demonstrate, of a cold, calculating, and mathematical character, of an intellectual egoism far more stern than that of the

individual, because it is not tempered by the rational sensibility of the latter. History shows the excesses which may result from it when authority is centred in the hands of one man. If this axiom is no longer manifested in our democracies it is because society is in our day public property, the aggregate of its citizens, who, though scattered and segregated in infinite ways, watch it and prevent it from transcending the proper measure. What will our great syndical associations of individuals become in the future? Are they approaching to the type of social egoism, or to the type of individual egoism. May they not in certain circumstances, as in the case of strikes and workingmen's unions which embrace both hemispheres, become a menace at once to society and to the individual? Instead of contending with the individual who is still easily guided by sentiments and even by pretentious words, society will have to do battle with compact bodies of individuals who have but one dominating guide—the absolute necessity of its nameless and irresponsible members. I have been a close observer of their doings. They commit sometimes collectively and with calm deliberation monstrous acts of which their members individually would disapprove, for the responsibility falls on no one in particular. The most moral being, despite the picture which we have drawn of him, is the individual, and that for reasons which I shall give later. Associations are less moral. The state would be even less moral than associations, were it not for public opinion and the fear of revolutions. And why? Because the individual alone has a sensibility which at times neutralises egoism, whilst syndical associations have the same egoism without anything to offset it.

Among associations there are some which merit particular attention: commercial associations for aiding and succoring individuals and "mutual" associations for the same purpose. They are concerned on one hand with saving, and on the other with insuring the individual and his family against disease, loss of employment, accidents, and all the other unknown possibilities of the morrow. Saving and insurance are the expression of a quality, foresight, which some animal species possess in the highest degree and others not at all, which the lowest human species do not possess, which

among civilised men is more or less developed, and which people are unanimous in regarding as one of the characteristics of the Celtic race (the brachycephalic of western and central Europe). This quality is certainly one of those which are most physiological and contributes, consequently, the most towards the personal happiness of the individual. It flows from the idea that the existence of every person embraces three periods: one of preparation, one of work, and one of rest. And that in this last period where the physical and intellectual faculties are reduced in power, the first necessity is not to be dependent upon the care of any one, not to be left to the mercy of any of those numerous reverses from which the bravest and strongest are not exempt in the struggle for existence, and never to have recourse to private or public charity. It accords with the desire for stability and for the enjoyment of the fruits of life in the environment in which one is born, the enjoyment of a home, which is opposed diametrically to the spirit of Bohemian unrest which tends to become general in the closing days of our century and is the source of so many evils. Evidently society should look with favor upon the practice of saving, of acquiring annuities for life, *pensions de retraite*, upon the establishment of combinations for guaranteeing dowries to young women, competencies to young men beginning life, and provisions for widows and orphans. We say that the state owes protection to children, to the crippled for life, to all whose parents fail in their duty to them prior to the period when they are competent to manage their own affairs. But it really falls to the lot of associations for mutual aid to include within their sphere of action the care of children. They look now-a-days to the needs of adults, but they should also think of the needs of the children and the adolescent. The more the state shows itself to be intractable in the matter of compassion, the more these associations will develop in this direction as well as in others. M. Chevallier in the work cited above shows that the great extension of societies for mutual aid in England took place subsequently to the revised Paupers' Law of 1834, that this law rendered the workhouses generally detested, and that the workingman was in this way brought to the desire to protect himself. He shows

also that home assistance furnished by the state hindered the development of providential societies, all of which is a repetition of the truth that the state should encourage such things but should directly interfere as little as possible.

There is a quality inherent in the human race, almost the exact reverse of the preceding, which society should also favor, not for the interest of the individual as above, but for its own general interest. It is distinctly marked in the Anglo-Saxon races, and consists not in placing one's savings aside so as to be able to draw therefrom interest, dividends, or security for the morrow, but directly to cause them to multiply by more or less boldness. It is the spirit of enterprise, symbolised in the saying "go ahead." Its drawback sometimes is the accumulation of too great wealth in the same hands and thus the furnishing of a foundation for all the objections which are raised to-day against capitalism. Its advantage is the increasing of the circulation of wealth, the affording to it greater chances for distribution among the more active laborers and the producing of the means of existence and the objects of comfort in large quantities from which all cheaply profit. We will not insist upon this subject, which borders upon struggle, activity in general and its rewards, of which we have spoken sufficiently. There is no doubt but society should look upon all such efforts with favor and should encourage all initiative in directions which may give profit to all.

Another direction which should be encouraged is the development of the intellectual faculties, the preference for pleasures of a higher order and consequently the raising of the level of the human species more and more above that of other animals. We speak of the sciences, of arts and letters, and of their applications, whatever be their kind and degree. And this leads us to education.

Education has two objects. The first is to shape the character of the generation which is entering upon active life, to discover and to develop the aptitudes which children possess. We shall see later what is to be thought of the second object. In virtue of the principle that the state should not interfere in things which individuals are willing to do, education should be free. But its duty is

to encourage in that way all private efforts, to watch it carefully, and to give its sanction to the certificates and diplomas which issue from it. We have seen that the state should take charge of abandoned children whose parents refuse to prepare them for the struggle of the future. Whether given by the family, by private institutions, or by the state, directly or indirectly, it is at the start obligatory primary instruction. It should aim chiefly to fashion the cerebral organ, to inculcate common sense, spirit, habits of observation and logical induction, ready memory, etc. At the second stage come the secondary schools of a general character, the different professional and special schools, access to which as the result of an examination revealing the inclinations of the scholar will be made easy by the state to children whose parents are unable to defray the expenses of tuition and maintenance. In the third stage, that of superior instruction, there must be also entrance examinations and also free tuition and support. The difficulty is to make families comprehend the obligation resting upon them of giving to their children the maximum education of which they are capable. With public opinion and some few inducements and expedients, this is not impossible. Why, in our elections, should not two votes be given to persons holding diplomas from the secondary schools, and three votes to the graduates of institutions of the highest grade? Why are not certain diplomas obligatory for filling governmental and administrative positions? Is not politics itself a science? The aim is that no child should be deprived of the means which are capable of emphasising and developing his natural aptitudes. The principle is that the state, without interfering with the rights of the family when the latter fulfils its duties, nevertheless owes protection to childhood, as later it is committed to neutrality toward the individual entering the arena. By a progressive artificial selection of the kind indicated above, society would procure the best and greatest possible returns from its population, with whose prosperity it is entrusted. The higher individual variations would come to the front; the mean variations would be enabled to display themselves in the best and most appropriate conditions; the lower vari-

ations for which there is no hope, would alone be sacrificed, but the emulation of the struggle would greatly diminish their number.

The complement of this education would be laboratories for original research, public museums and collections, a few very special superior schools, model farms, national manufactories, and lectures which I might style luxuries, and which in the American phraseology are said "not to pay," but which are yet absolutely necessary for societies that are anxious to hold their own in the steeple-chase of progress. The state, if it does not take upon itself its duties directly, should at least carefully see to it that they are fulfilled.

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The second object of education implies a broader signification. It looks to the public morals and to individual habits of feeling, thinking, and acting, independently of the useful or disadvantageous effects which they may have, and of the pressure exercised by the laws. It is concerned with the external conditions which are to be adapted to human nature, or with those aspects of human nature which are to be adapted to social conditions, and has for its direct object the intrinsic progress both of society and of the species. Two systems here confront us. In the one, evolution is considered as always ending, after oscillations for good or for evil, in the best possible result, and is consequently abandoned to itself, that is, to the free play of individualities and of circumstances. It is the *laisser aller*. In the other, evolution is considered as not giving desirable results and as requiring, therefore, guidance toward the end to be attained—the greatest happiness distributed among mankind in the most equitable manner. This is the system of interference.

And this brings us to the ego whose history we have traced in describing the individual at pages 562–566 of *The Monist* for July, 1898. In every individual, as we have endeavored to show, conduct is the outcome of three factors. The first is the ego which is inherent in the animal and exists in man as in all animals,—with this difference that man having more intelligence, this ego assumes in him a high authority. It is the guide and guardian of the individual, it

has no object but the needs of the individual and their satisfaction, it is devoted entirely to these objects, it is egoism incarnate. This is the animal ego which we have portrayed in such sombre colors. The second factor is the product of habits of feeling, thinking, and acting as they are formed in ancestors and bequeathed to the individual in the shape of predispositions, which when confronted with conditions similar to those which have engendered them, are appropriately developed and have a weighty influence on the acts of the individual. This is the ancestral ego. The third is the product of the habits of the individual himself, acquired during infancy and the course of his life, depending on the maternal and primary education, on the comrades with whom he has associated, upon the examples which have been set him, upon the methods of feeling and thinking to which he has abandoned himself, upon the ideas which he has formed, and the allurements which they involve. This is the acquired individual ego. It also has a profound influence upon the acts of his life.

The animal ego reduced to itself is all-powerful in its activity, but its interference is not obligatory, as has already been said; it is optional; it is affected when the attention of the ego is sufficiently aroused and when the ego is resolved to have full sway. The two other egos, on the contrary, are passive. An excitation arrives at the cerebral centre, awakens these egos, and brings about the reflex action which it has already produced. Combined they constitute the unconscious ego which answers spontaneously to the demands of the individual when the real or conscious ego is not moved to intervene. The conduct of man, neglecting the purely medullary reflexes, is the outcome now of the one and now of the other. The conscious ego is the author of reasoned and directly willed acts, the unconscious ego is the source of instinctive and more or less spontaneous acts which are termed "impulses."

But the peripheral excitation which has reached the brain does not always directly awaken there the motor reaction; it also awakens the sentiments and ideas which hereditary habit and acquired individual habit have established in previous periods, together with the entire network of thought which is attached to it. Little as the

conscious ego occupies itself with what takes place in this labyrinth, still the sentiments and the ideas awakened, arouse of themselves the acts which are in habitual correlation with them, acts which even the conscious ego, if it were in full possession of itself, would probably never have committed. Thus a host of actions are explained, which society regards as proper or deserving, and which are yet in disaccord with the reasoned interests of the individual,—among them being acts of self-denial, generosity, and devotion.

Now of what are the ancestral ego and the individual ego which mutually strengthen each other, the outcome? Of modes of living and instruction, of impulses in ancestors and in the individual, which can be governed, evoked, and created. The animal ego knows but one thing—itself, its interests, and its pleasures; the acquired ego acts as it has been in the habit of acting, and as it has been taught. The first calculates, the second obeys automatically. The first has its roots in the physiology of the organism and is incorrigible. The second can be moulded, adapted to social needs, and trained to feel and to think as the general welfare requires. The results of education, taken in its broadest sense, are brought to bear upon the acquired ego from the first generation, when it was formed, but more so upon those which follow where the same education is repeated, and where heredity comes to its assistance.

The ways and the means remain. In the first rank appears education by the family, its basis being respect for ancestors, veneration of their memory, and the meritorious examples which are to be cited from this source. The natural rôle of the mother is to form the heart, that of the father to shape the intellect by implanting in it the necessary notions of the reciprocal duties of men in society, of obedience to laws, of the responsibility of every one for his acts, of the obligation of every person to carve out his own destiny,—in fine everything which is indispensable to the existence of life in common. Upon this chapter of the family we should have much to say; we should have to recall all that we have seen of this subject among animals and at the dawn of human society. The problem of woman at the present day would be added. We should have to place in the foreground the Anglo-American movements

for her emancipation and the ideas which *The Monist* has somewhere characterised as French, regarding her rôle as a guardian of the domestic hearth, as a conserver of altruistic sentiments, and as the educator *par excellence* of children. We should have to ask which of these opposing evolutions are best qualified to lead humanity to happiness, and whether we should in our desires prefer the point of view of nature or the point of view of philanthropy. But this would require much space, and the subject deserves its own separate and full treatment.

In the second place comes the education which falls without the sphere of the family and is affected by the environment; that is, on the one hand by companions, examples, the conditions in which one lives, the allurements to which one is subjected; and on the other by the school, the books and the magazines which one spontaneously reads. It is undoubted that at the start primary instruction should not run counter to that of the family; that on the contrary it should strengthen it; that one should not make freethinkers of children prematurely; and that without touching the liberty of conscience, one should inculcate in them the necessary principles of the conduct to be pursued in society, which can be recapitulated in the axiom "Not to do unto others what we would not have them do unto us," and conversely. Of all the agents of education outside of the family and the school, the most active without doubt are the books and the journals which one takes, not for instruction but for distraction. But under what various aspects are these not presented? What wonderful services might they not accomplish in the hands of men who had the true sense and feeling for the beneficence that could be spread by them. They could habituate people to sound and comforting ideas; they could set the example of the morals which it should be desirous to establish; they could elevate the heart and the mind and facilitate the task of the wise, who see afar. But in general their action is the reverse. I dare not say what the state of affairs in the United States is in this regard, but here where I am writing, the picture is a sad one. The good is eclipsed by the evil; the liberty of writing and of publishing is one of the conquests of modern times, but in the stage which it has

now reached it is merely an unnamable licence. The most shameful novels, which show the human species only in its basest aspects, and which glorify vice, are in all hands, and especially among the lower classes to whom they are furnished for a mere nothing. With certain reviews and journals they contribute more than any other cause to the increase of the number of criminals, and especially of young criminals. In order to sell, these journals shrink before nothing; they exalt the passions, openly cultivate scandal, preach insubordination, and crush the holiest and most useful sentiments under foot. The press should be the great educator; it is the great demoraliser. If any example of the contradiction between the principles, or rather the desires, and reality is conspicuous, it is assuredly here. On the one hand it is desired that the individual should enjoy all his liberties, although the very essence of life in common is the restriction of those liberties. On the other hand people seem to regard it as their duty to furnish the proof that unlimited liberty is impossible. There is no middle course. The press, the novel writers, and the pamphleteers must understand that their mission is to encourage the development of the necessary morals, or that they must be prepared for being repressed.

In the third instance, come the laws and institutions which best foster the customs and habits which it is desirous to develop, and the modes of feeling and thinking which it is desirous to arouse. The state should be strict with those under its care, but also strict with itself, and should give the first example of the virtues which it exacts. The individual responsibility of each of its employees, whatever their rank, should be absolute for every undertaking, for every infraction of the prescribed forms. The slightest failing on the part of the state throws trouble into the souls of individuals and authorises them to revolt. Everywhere, in the bureaus, in the tribunals, in its diplomatic service, it should be impeccable. But so long as war persists with its perverted ethics, there can be no hope of an absolute transformation of the public mind. The numerous and flagrant mistakes which are sometimes committed in the name of justice and for reasons of state, which authorise everything and anything, have pernicious results.

In the last instance come the efforts of private persons and of associations which are animated by a profound love of humanity,—the efforts of practical philanthropists, of philosophers striving to elaborate systems of conduct, and of scientists coldly analysing the difficulties of the problem. Here is the place to ask whether in order to give unity to all these efforts, the time is not ripe for establishing a code of morals concerning certain indispensable points regarding which the whole world is in accord.

We have seen how little a man amounts to in time and in space, in the hands of an irresistible nature which crushes him despite the fact that he has found a way to adapt some of her forces to his needs; how intensely he desires to live as fully and agreeably as possible while perpetuating his species, although as an individual his foresight reaches hardly beyond his children and grandchildren. We have seen, on the other hand, that society has adopted for its controlling principles not absolute truths but relative and necessary truths in order to fulfil the end for which it exists, and to enable individuals to live wisely and conformably to their desires; that among the principles of solidarity, liberty, equality, fraternity, and justice, none of them can withstand rigorous examination. Society is a solidarity of interests, and not a real solidarity; the basis of society is the restriction of liberty; equality does not exist among men nor in the results of their conduct; fraternity is but disguised egoism. In social practice these principles amount to this—solidarity, but psychical only; equality, but only before the law; fraternity, but only as a dream. Yet one of them dominates all the others,—justice, an imitation of relative and individual justice, and the synonym of "giving to every one what is his due." Solidarity, in fact, implies justice; the restriction of liberty implies justice; justice implies equality; without justice there is no fraternity. Justice thus becomes the primal necessity *par excellence*, the postulate[1] of any system of life in common. Justice is our supreme desire, the ideal of which we dream in spite of all proof to the contrary, that

[1] "Any truth is called a postulate, which although not rigorously demonstrable must yet become practically admitted because of the necessity of its consequences." —Paul Janet, *op. cit.*

which we say must be, that which we are bound to create and establish in spite of all, and in the face of all, of which we must be convinced and which must be taken as an article of faith.

It is justice therefore with which the necessary moral code which is to be enacted must in the first instance be saturated,—the commandments of society which are to be prescribed for the family and for the schools, notably for the primary schools.[1]

But, it will be said, this code of morals and these principles, these habits or instincts impressed upon the unconscious ego, consolidated with time and sanctioned by the punishment which the laws prescribe,—will they be sufficient to assure in all circumstances the conduct desired? Should there not be sought in the individual organism itself, in its cerebral system, some influence which would act from this side on the unconscious ego and move it in the direction which society deems best,—in the direction of what is called the good?

The first influence to be invoked would be the categorical imperative of Kant. And without a thought of this and by ways which Kant would doubtless have rejected, it is precisely to this idea that we ultimately come. The individual feels with the sentiments and the ideas of his ancestors. These ideas deserve the qualification of innate. He acts with the habits which these ancestors have handed down to him and which education has confirmed. His animal ego reflects what the acquired ego has gained; he no longer knows whether he acts automatically or by his own initiative, and he adopts the good or evil as society wishes.

The second is that expounded by M. Guyau in his different works,[2] and which I shall paraphrase as follows: life which has reached the last stage of its evolution in the organic series, which has arrived at the point where it is aware of itself (consciousness), where it admires itself and everything about it (the æsthetic sense),

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[1] See Paul Janet, *Eléments de morale pratique. Enseignement secondaire moderne conforme aux programmes officiels de 1891.* Paris, 1897. I take exception to Chapter X. only.

[2] M. Guyau, *Esquisse d'une morale sans obligation ni sanction*, Paris, 1892; *L'irreligion de l'avenir*, Paris, 1896; *Vers d'un philosophe*, Paris, 1896, etc.

where it diffuses itself over others (the moral or altruistic social sense), even over ideal beings (the religious sense). "Life, the most extensive and intensive possible, conscious of its fecundity," he says somewhere. "To live the maximum of life," he says again, "in the most varied manner possible and to cause that life to overflow upon others, is the end and the cause of our acts, and not the pleasure which we derive from them." It is the need of activity inherent in every organ, in every organism, and especially in the brain, of which I have frequently spoken, but the consecration of which, I add in opposition to Guyau, lies in the pleasure which this activity offers of itself. The objection is this. It is a power of expansion and not a guide to conduct in a determinate sense, useful to all. It is perfect in people like Guyau, a poet and a philosopher, who find happiness in the exercise of their highest intellectual faculties, but it is inefficacious in that other class of persons, and these are the great majority, who place their ideal in satisfactions of a different order. On this theory one can be a villain, a Napoleon, or a Rothschild.

The third influence is self-respect, human dignity, belief in one's superiority,—in a word, pride. Man, recognising his dependence, proudly and haughtily refuses to accept as the judge of his conduct any one but himself. This is stoicism in its general form. It is excellent for inspiring courage and for enduring undeserved adversity, but it is insufficient to arouse that generosity and tolerance which are factors of the conduct desired by society.

The fourth, which is derived from the two preceding, is the will which flows from liberty as it is understood by M. A. Fouillée. I shall recapitulate its main terms: "It is a characteristic of man that he is moved not by purely physical forces or blind instincts, but by ideas." "Ideas are forces which influence our conduct by the very fact of their conception." They are at once the cause and the end. "The evolution of nature can have no preconceived end, in the proper sense of the word, but the evolution of humanity has one, from the fact that humanity actually sets itself an aim, and imposes upon itself an ideal to be realised." "The idea of a society adopting liberty, equality, and fraternity as its end is the

highest moral ideal." To will is to be able. "Ideal liberty is a power of indefinite development, the essence of which consists in the power to throw off selfishness and to love, and the progressive realisation of which would lead to moral and social union among living beings." I confine myself to two remarks. Ideas conceived as moving springs of conduct are precisely those spontaneous impulses which I desire to create by education and heredity. Liberty implies the power of showing oneself unselfish, but in the same measure the power of considering everything in the light of one's interests.

The fifth influence is the prudent interest of Bentham and John Stuart Mill, by virtue of which the individual through careful reasoning identifies his personal welfare with the welfare of all. It is virtually the end to which the system that I have developed tends, save that I would replace the words "by careful reasoning" by the word "unconsciously." In fact, intelligence varies. Secondly, intelligence may in many circumstances, and precisely in those in which the unreflecting impulse is the most necessary, come to the conclusion that the interest of the individual is opposed to the social interest. In my system, on the other hand, the individual acts unconsciously in the direction required, for the simple reason that he has the habit of so doing.

A sixth influence is that physiological property on which we have so often insisted, which is highly developed in the majority of animals, particularly in herbivorous and domestic animals, and not less developed in man in the state of nature before the struggle with his fellow-beings broke forth and had not assumed in society so threatening a form. We are speaking of that species of cerebral sensibility which moves both man and animals to seek the company of their congeners, to derive satisfaction from their mutual relations, to love others, and to desire to be loved by others. It is altruism, of which the first stage is kindness and the last devotion; the most powerful physiological impulse next to egoism, although it is only an indirect form of egoism. To love and to be loved, next to eating, drinking, and acting is the first need of children. It remains intense to the age of puberty, and continues to the day

when the individual enters into the arena of serious life. In the old man who has no longer any of the cares of existence, it resumes its rights and spreads over his grandchildren. In the adult, in the moments of respite which the struggle leaves him, it is his repose, refuge, and recompense. How sad life would be without friendships! In the bosom of his family the wife satisfies the needs of the heart rather than those of the senses. The husband, who is less faithful in the second regard, is loyal as to the first. Man undoubtedly domesticated the dog by altruism, and every day we see him creating bonds of attachment to himself in the most different kind of animals, by simply asking for reciprocity. Altruism is the first source of sociability, as we have already demonstrated, and it is its consecration under its multiple forms of kindness, indulgence, tolerance, self-denial, sympathy, charity, generosity, devotion. This is the reason why, in spite of all the objections which may be raised to assisting the unfortunate, no voice is ever raised against it, and that there is no difference of opinion except as to the means. It is the only physiological force which can check in the organism itself the impulses of egoism and the many secondary forms which egoism assumes. To adopt reason as the instrument for combating personal interest after the fashion of Bentham, is to exaggerate its power. To adopt human vanity, liberty, or fear, is still more exaggerating it. The system of Guyau accords best with that of altruism, for to live in the happiness of others as much as in one's own, to exchange impressions, sentiments, and thoughts, is to live with greater fulness, and to see about one nature in all its smiles and beauties. Justice is a necessary regulator of social life; external equality which society offers is its corollary. The maximum possible liberty is the individual principle that comes next, and let us add to the latter, the principle of fraternity formulated by the Master, "Love ye one another."

With these two elements, altruism as the basis, and habits and social instincts as the means of execution, the desired end will be attained. The conditions to be sought, the reforms to be made, the new things to be added, are they not precisely what we see has been spontaneously effected in our best and most esteemed fam-

ilies? What, in the last instance, are the best of us, individually, if not the product of the transmission of virtues which our ancestors have bequeathed to us, despite our tendency to create other habits for ourselves, to wrest ourselves from the bonds of heredity, and to build up in ourselves independent originality? The good instincts which we may have, do we obtain them from the spirit of the century, from the cold reasoning of the day, which analyses the motives and the effects of all acts, and mathematically calculates its interests? No, we receive them from our predecessors. We are honest, proper, and loving because our fathers and grandfathers were so. Otherwise, how can the naturalist and the freethinker explain the flagrant contradiction which exists between his conduct and his reasoning. He sees only brute reality, he establishes the sad truth, he deduces the consequences of it, and yet he is unable to free himself from the most generous aspirations of his altruism. He places friendship in the front rank and practises it. Why? Because the soul of his ancestors is perpetuated in him, because he is their continuation. Yves Guyot, who professes egoism as the sole principle of individual conduct in society, writes as follows: "When I see a child beaten, and hear it cry, when I see a woman weeping, when I am the witness of suffering, I am divided into two persons. Another ego feels these pains. . . . All my fibres are set in vibration; the old blood of the soldier, the corsair, the hunter, which runs in my veins, seethes within me. . . . My instincts impel me to act." He speaks truly. It is no longer the egoist who is talking, but the altruist by heredity.

The establishing, or re-establishing, of the customs which are best adapted to social happiness and their progressive consolidation by heredity; the ego, without name, acting automatically in the direction which society deems to be the best; the individual and society, shaped by man as he shapes a plant or an animal conformably to his needs, justice as the regulator, and love as the ideal: such, in fine, is our system.

Is it necessary to add to this a grain of mysticism—a belief in the absolute, a belief in the individual surviving the body and preserving its memory? Or the transformation of the categorical im-

perative in the form which we have stated it, into a metaphysical entity? We do not believe that the system would gain by such an addition. It would be a dogma simply. It is true that justice, as we have shown in the case of society, deserves in some measure this name, and that liberty is not much farther removed from it. The essential thing is to attain the end, the greatest possible happiness. But is not illusion frequently happiness? Is it not often more beautiful and more consoling than reality? Read the heart-breaking pages of Guyau,[1] dying and still not abandoning hope. Would it not have been cruel to deprive him of it?

Certainly, but to admit illusion, even in the extremest case, would be tantamount to declaring that truth is insufficient, that there is no remedy whatever, and that human reason culminates in lamentable fallibility. But we have not reached this point. Truth, when we look it calmly and stoically in the face, is not so discouraging. Herbert Spencer, who concludes as we do as regards the necessity of developing altruism and certain hereditary habits, is wrong in his expressions of despair at the close of his monumental work. We differ from him in the point that he counts upon the free play of individuals and natural evolution, whereas we believe it indispensable that man should direct his own evolution. We, too, have had our moments of doubt,—not regarding the efficacy of our system, but regarding the possibility of realising it without the intervention of too much authority; but we have taken fresh confidence. We believe unqualifiedly in the great power of heredity, habit, and unconscious impulse over our daily acts. We are convinced that if society so desires it and comports itself properly, it can in a few generations transform sentiments and manners, and adapt them to its needs. The useful instincts have sprung up of themselves in animals. Why may they not, with the assistance of reason, be created in man? Speaking only of France, I have already seen about me for the last ten years, certain indications pointing to renovation; new social classes will achieve success where the old have failed. No doubt there will be storms, good

[1] Pp. 26–28 of his *Esquisse d'une morale.*

and evil alternations, but in the end evolution, which proceeds only by oscillations and starts, will enter on the right path. Let us not despair. Man is too powerful to fail in reaching his end. The golden age of humanity is ahead of us, the sun of the twentieth century will be that of truth. "Error is a Penelope who, without wishing to do so, is incessantly unravelling the texture which she has woven. Truth, on the other hand, in the struggle of ideas for life, will sooner or later bear off the victory." (Fouillée.)[1]

Let us revert, as we near the close, to the question of the functions of the state,—first the essential functions which it cannot possibly cast off, and secondly the facultative functions, including one of the highest importance, that which concerns progress, or more exactly the best adaptation of things to men and of men to things. It may be summed up as follows:

The state is responsible for the existence of society without and within. To this end it is armed with all powers and uses them

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[1] The article of Professor Dewey in *The Monist* for April, 1898, and that of Dr. Paul Carus in *The Monist* for April, 1894, on the *Evolution and Ethics* of the late lamented Professor Huxley, have just drawn my attention to Vol. IX. of the *Collected Essays* of this author. I was much struck with the identity of my conclusions with those of Professor Huxley, published in 1888, 1893, and 1894. I am not astonished at the fact, however; for, proceeding by the same methods, and with the same facts and in the same spirit, we ought necessarily to have reached the same result. I call attention to some few of the propositions.

"Social progress means a checking of the cosmic process at every step, and the substitution for it of another which may be called the ethical process."

The science of ethics or morals is that of the best conduct for the individual and society. The morally good is what answers best to the general good of the community, all other things being equal.

Social progress is effected, not by self-assertion (my "free expansion of life" in the individual, Guyau's "need of living at the maximum"), but by self-restrainl and self-discipline.

"The intelligence which converted the brother of the wolf into a faithful guardian of the flock ought to be able to do something toward curbing the instincts of savagery in civilised man."

Huxley does not formally indicate the ethical process which I set up; namely, the moulding of the acquired and unconscious ego to conform to the needs of society; but it follows implicitly from numerous passages of his on habits, reflex actions, heredity, etc. We find, in fact, that there is no choice; either we have to abandon ourselves to the *laisser faire*, which is nothing but the cosmic process itself and can only lead to anarchy and the rule of the strongest; or, we must, by taking our stand on the nature of man, *direct* the ethical process, as I have explained.

as it sees necessary. It is entrusted, further, with its prosperity, present and future, and its guidance is limited here by the laws, which it is as much bound to obey as private persons are. These laws change with the legislature, and the question recurs: What is the scope of power that should be accorded to it? Should they be augmented or curtailed? Should more be given to the state and less to the individual, or conversely?

It is here that the difference of opinion of statesmen, economists, and sociologists appear. There are extremists on both sides. On the one hand are the collectivists who wish to lodge every possible power in the state, to revert to the communal or national form of property existing in the majority of primitive societies, to regulate the entire current of life, to give to each according to his needs strictly considered, and not according to his labors,—in short, to suppress individual responsibility. On the other side there are the anarchists who refuse to consider the least restriction of natural liberty, who attack thus the very principles of society and go so far as to say that wherever three men are assembled there is a tyrant. Neither the one nor the other of these systems deserves to be discussed. It is certain that the time has come, that there are many reforms to be made, that all have not their equal share of the means for administering to their needs and for becoming established in life, but the difficulties cannot be solved by exaggerations which are at downright variance with practice. Between the two extremes are the advocates of authority who believe in a strong state thoroughly centralised, but a state which grants to the individual sufficient liberty to enable him to move freely in the sphere of his personal affairs; while there are also the radicals who are for decentralisation, who would give the maximum of liberty to the individual without going to the extreme of the anarchist, but who are too hasty to be practical.

In the centre are the progressivists whose name is perfect and who also deserve the name of opportunists, as they are called in France. For us they are the sages of Plato, those who know how to put to use the teachings of social science according as it is de-

veloped, those upon whom I would count for directing the social evolution in the direction and by the means which I have sketched.

It is from social science, the most important of the applications of anthropology, of which sociology is a branch, that all light is destined to come. Born of yesterday, it already bears testimony to its sweeping influence. Its program is clear: to classify the ends in view; to look the difficulties courageously in the face even where unsurmountable; to establish principles; to seek to reconcile the contradictions which we have instanced between the conceptions and desires of man and the realities of nature; to suffer every progress to come to its maturity; to proceed without prejudice, without theory, with a full knowledge that the absolute good cannot be realised, but only a relative and progressive better. The developments which we have been following in this long work reveal our tendencies at the points where we have not indicated them. For us, the individual, the family, and personal property are the social tripod. For us, the political formula is as follows: the maximum possible to the individual, the minimum possible to the state, and in the latter the most possible to the local authorities, the least possible but the necessary to the central authorities. If I am not mistaken this is the condition that exists in the United States.

* * *

We have reached the conclusion of our long work which we had entitled "Science and Faith." We have spoken much of the one and very little of the other. The reason is that the two mutually exclude each other. Science is knowledge; faith is belief. Science considers things objectively and accepts only what is demonstrated by observations, *perpendæ et numerandæ*, and by generalisations and inductions which go with it, stopping at agnosticism.[1] Faith, on the contrary, is subjective, individual, and dependent on cerebral sensibility, as the latter has been constituted by heredity, education, habits, and temperament of the subject. Orators, who like the celebrated Dominican, Père Didon, seek to demonstrate

[1] That is, stopping where the facts abandon us, not having recourse to a world where no positive and objective facts are forthcoming.

the compatibility of the truths established by science and the beliefs dictated by faith, only shatter the latter; a faith which is examined and shown to be in accord with facts ceases to be faith. It is warrantable that in the epoch of humanity in which we are at present, there is utility in extolling certain articles of faith, as Kant has done. It is quite warrantable that certain philosophical doctrines are advocated; and one cannot admire too much the sages who thus devote themselves to the mission of work for humanity. I am not far even from admitting that the four or five principles, especially justice, which society takes for its base and ideal, should be converted into articles of faith, but I would have it perfectly understood that the two domains of science and faith are totally different—are two contrary poles.[1]

P. TOPINARD.

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[1] I have been much struck with the religiosity, excessive but perhaps necessary in its excess, of the English and the North Americans, joined to a calculating, free, and well-balanced psychological state, which I appreciate all the more highly because if I am not mistaken it is the same that governs my own ideas. This religiosity was principally formed some *centuries ago* with the Puritans and the Presbyterians of Scotland. Nevertheless, as an anthropologist, I believe that this placid religiosity, which is so different from that of the dark populations, goes back to very remote times and is one of the distinctive traits of the blond races. For proof, witness the religion of the Druids, of the prehistoric Gauls (I speak of the tall, dolichocephalic and blond Gauls, and not of the brachycephalic Celts), the congeners of the Cambrians, British, Danes, and so forth.

AN ILLUSTRATION.

A MATHEMATICAL curve sometimes serves to illustrate the results of investigation in other sciences. Here, for instance (Fig. 1), is a part of a plane curve of the second degree—an hyperbola—referred to its rectangular asymptotes.

May not this curve be used to illustrate the theory of the evolution of organic life upon our planet, from its lowest to its highest possible forms?

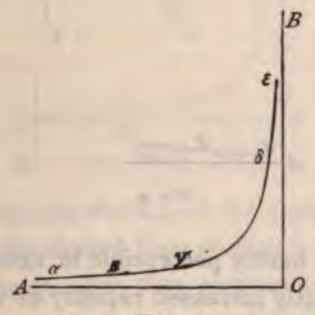

Fig. 1.

Suppose the direction AO to represent the duration of time, and the direction OB to measure the degrees of organic development through the possible range of organic life. Then the curve $\alpha\epsilon$, combining the two directions according to a certain law, may represent the successive development of organic life during the course of time.

Thus, organic life of the lowest possible form is supposed to have begun on the line OA at an unmeasurable distance to the left of O. From that point on, in the course of time, improvement has been continuous. In each successive age, higher forms of life have

appeared, as, in the curve, every point of it is above AO, and increasingly so as we proceed from left to right. But the development has been very slow,—the direction of the curve for ages seems to be almost parallel with the course of time itself. When we reach α, for instance, the highest form of organic life of the period is still very low.

Suppose now that the distance from the line AO to the point α represents the degree of development attained by a trilobite, and in like manner think of β as representing a fish, γ an anthropoid ape, δ the lowest known type of man, and ϵ the highest known type of man. Then it will be interesting to note the *direction* of the curve at each of these points. At α, and even at γ, it is almost horizontal, and if development were to continue at the same rate, im-

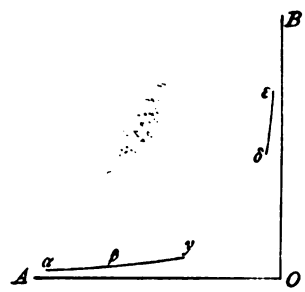

Fig. 2.

provement would be hardly perceptible in ages. How different at δ and at ϵ! The greatly increased rapidity of the improvement results in giving the curve an entirely new direction. Heretofore, we may say, the development has been mainly physical; now it appears to be mainly psychical—intellectual, moral, spriritual—reaching heavenward, if we may think so. Yet the curve, from end to end, even in the beautiful deflection from *onward* to *upward*, is following its mathematical equation. Every point in it satisfies that law, and we are reminded that the theory of evolution also embodies a law.

But suppose, now, that instead of Fig. 1 with its continuous curve, we had only Fig. 2.

To one not familiar with mathematical curves, there is little to

suggest that these two bits of line, $\alpha\gamma$ and $\delta\epsilon$, have anything to do with one another. Their directions are quite different, and they *seem* to be straight rather than curved. A mathematician, however, might look at them in a different way. He might turn the page up edgeways and squint along the lines, and he would then find that $\alpha\gamma$, and even $\delta\epsilon$, show a perceptible, though slight, curvature. He would apply such micrometric tests as he could, and from the measurements obtained would carefully calculate the equation of each short curve, and the resulting equations would be found identical. One conclusion only is possible,—the two bits of seemingly straight line are parts of *one curve*, and he proceeds to reconstruct the missing parts as far as ever he will, with mathematical pre-

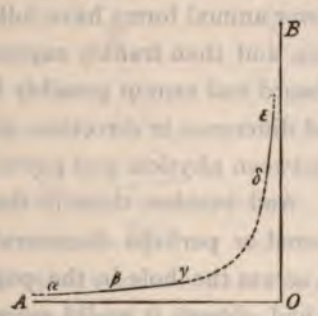

Fig. 3.

cision, by simply applying the law of the curve. This reconstruction may be seen in the dotted lines of Fig. 3.

But let us suppose, now, that some one had torn out a piece of the paper between γ and δ, and so had rendered it impossible to reconstruct the curve across that gap. Would our mathematical friend be any the less sure that the two bits of curve are in reality the same curve? No. He has already discovered that they have the same equation, involving the same variables in the second degree, the same constants. Proof does not depend upon ocular demonstration, nor does it consist in ability to mechanically reconstruct all the missing parts.

But how is it in the matter we are trying to illustrate? Another friend of ours, a theologian, has read Darwin and Wallace and Mivart and Romanes, and is informed and believes that organic life

in the lower forms of existence has been developing according to an ascertained law. So far, however, the direction of the development appears to be almost on the dead level of animalism, though some semblances of intelligence are found among the higher animals. He has found man also developing at a wonderful rate in a direction quite different from that other, that is, intellectually and spiritually. In other words, reverting to our illustration, he has discovered the two bits of curved line shown in Fig. 2 and he has noticed the hypothesis that they are parts of the same curve and have the same equation. He agrees with a recent writer that natural law extends into the spiritual world, but when brought face to face with the proposition that the development of man and the development of the lower animal forms have followed the same identical law, he hesitates, and then frankly expresses his opinion that the proposition is absurd and cannot possibly be true. Why? Oh, there is that marked difference in direction, almost the whole quadrant of difference between physical and psychical, or between material and spiritual. And besides, there is that great gap, with no missing link discovered or perhaps discoverable. He cannot reconstruct the curve across the hole in the paper. Ocular demonstration is not to be had, though it would seem so desirable, not to say essential to proof, in a proposition of this kind. And who knows, after all, whether the micrometric tests which Mr. Darwin and others applied were not so minutely *in*-accurate as to be practically worthless,—whether the calculations based on them have not been vitiated by some undiscovered error?

Moreover, our theological friend has followed some observations long since made on the bit of curve called $\delta\epsilon$, and has held a theory of man somewhat different from our more modern and crude scientific one. He believes that $\delta\epsilon$ is a curve, sure enough, but he has been taught and has been teaching that its nature is parabolic, or perhaps, even elliptical, rather than hyperbolic. He has an equation which seems to fit it excellently, and has himself done some reconstructing in accordance therewith, as in Fig 4, whereby it appears that his curve does not start with a point at an unmeasurable distance to the left, and lower down than a polyp,

but really began only a little lower than a certain Θ, at α′,—Adam, the first man. Man had to fall before he could begin to rise. Paradise must first have been *lost* before Paradise can be regained. How else is it possible to account for the phenomena of *Sin*?

A simple illustration should not be pressed too far. Of course, it does not prove anything. But this one suggests a question or two. In Fig. 4 the dotted curve has been constructed from observations made on one small part of one leg of it. The hyperbolic curve in the preceding figure was constructed from observations made on parts of *both* legs. The data in one case may be said to

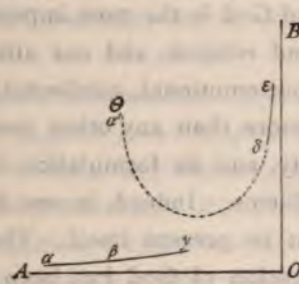

Fig. 4.

be all spiritual. In the other case, there are two sets of data. Which process would seem more likely to lead to a correct result? And again, it is not hard to believe that one of God's laws, in the form of a mathematical equation involving the squares of X and Y, represents the very nature of an interesting curve, of whose legs the one is almost horizontal, the other almost perpendicular. Is it really any harder to believe that under another of God's laws, involving variation and selection, the evolution of organic life has successively produced such forms as the longitudinal worm, the half-upright ape, and the upright man?

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GOD.

THE conception of God is the most important idea of philosophy, science, and religion, and our attitude toward it is of vital importance for our emotional, intellectual, and moral life. It is a thought which, more than any other, covers the unity of existence in its entirety, and its formulation touches upon a great number of other problems. Indeed, in one form or another it is likely at any moment to present itself. Thus it is a matter of course that the conception of God has been approached in various ways and can be treated in the most diverse manners. We may with mystics abandon any attempt at comprehending the problem and indulge in purely intuitional contemplations, which naturally will assume the form of visions and ecstasies. We may with moralists point out the close relation between God and duty and preach the sermon of the categorical imperative; or we may with the scientist seek the ultimate *raison d'être* of creation and trace the eternal, the everlasting, the permanent in the transiency of existence. We might combine the three methods and start from the needs of these three aspects of human nature, the head, the heart, and the hand, and proceed on these three avenues of our life to their centre, in the hope of harmonising the results of our methods and reconciling apparent contradictions.

Yet we may take still another road which is very promising. The God-idea is of historical growth; it is (in the form in which it exists in the minds of the present generation) the product of a long evolution; it represents aspirations definite in kind and tending in a definite direction. These aspirations are by no means

all consistent; to a great extent they are conflicting and even directly contradictory. Many of them are conservative and reactionary; others progressive and radical. A great part of them partake of the nature of instincts. They are, in their ultimate constructions, submerged in the realm of subconscious and unconscious soul-life. In other words, they are based upon arguments which do not appear on the surface of conscious life but are buried in the traditions of the past, and have originated under the influence of the experiences of our ancestors from time immemorial, still embodying the notions of primeval man, which, however, have been added to and have also been corrected by considerations of a more matured period.

All these methods are constructive. They are methods of handling the material that is given and (however critical we may be in details) assumes (or, at least, may assume) as a matter of course the legitimacy of the God-idea itself. But we might attack the subject in quite another fashion, a fashion which at first sight appears to invalidate the whole issue, but may prove after all most fruitful by assuming an attitude of doubt and subjecting the God-idea to a critical analysis.

What if, after all, the atheist be right? Would not the whole question as to the nature of God become irrelevant? Would not the visions of the mystic have to be regarded as aberrations of the human mind? Would not the God-idea in science and philosophy be out of place, and had not ethics better dispense with it as an unfounded hypothesis, while in history it should be treated under the heading of superstitions?

These questions we venture to answer with a decided no. Even from the standpoint of the atheist, the God-idea remains the most important thought in the history of the world. It is neither irrelevant nor an aberration, but contains the most important, the deepest and most comprehensive, philosophically the most explanatory, and practically the most applicable truth of all truths,—a truth which is expressed in a most telling popular way, setting forth its main features in striking human analogies and with a directness that shows at once the practical and personal interrelation of the

unity of the whole to all parts, of the universal to all particulars, of God to every one of us.

There is, so far as I can see, only one more attitude left, which is the agnostic position, holding that we cannot know whether God exists or not. Agnosticism, which may briefly be characterised as a bankruptcy of thought, is not only the weakest but also the most injurious philosophy. It is the philosophy of indolence which on account of its own insolvency declares that the most vital questions of man's life, the questions of the soul, the soul's relation to the body, the immortality of the soul, the existence of God, the creation, and the ultimate purpose of being, are beyond the reach of reason. The agnostic argument consists in glittering phrases such as "the finite cannot comprehend the infinite," which are unmeaning, if analysed, but, as a rule, strongly appeal to the Philistine who is satisfied with mere words.

"The finite cannot comprehend the infinite" is such a common-place expression and is so thoughtlessly repeated by both reverent and irreverent agnostics, that I may be pardoned for a short digression in pointing out its weakness. What does the phrase mean? Are the terms "finite" and "infinite" used in their strict scientific, i. e., their mathematical sense? Apparently not. For in mathematical language the "infinite" as such is not less definite and clear than the "finite." It is a process unlimited, while the finite is limited. A mathematical line is infinite. The decimal fraction 0·333, etc., if it were actually extended to equal one third would be an infinite series; the tangent of 90° is infinite, etc., etc. All these infinitudes are as little incomprehensible as the finite numbers 1, 2, 3, or any other magnitude. Are the terms finite and infinite used in the mechanical sense? Apparently not. An infinite chain, an infinite screw are mechanical contrivances which serve the same purpose over and over again. There is no beginning and no end; but an uninterruped round of revolutions. A circle, a ring, a wheel, capable of unlimited functions by returning again and again to the starting-point, are not more incomprehensible than things definitely limited in their work, having characteristic starting-points, progressive developments, and final consum-

mations. There is as little sense in the saying "The finite cannot comprehend the infinite" as in the words "The rational cannot comprehend the irrational," or "The wise can never comprehend the unwise." If, however, the words "finite" and "infinite" have a special sense, the inventor of the argument should first define the terms before he expects us to accept his conclusion as valid.

There are two kinds of agnosticism: the pious agnosticism of him who would not allow the light of science to shine upon the problems of religion; and the infidel agnosticism of the scoffer who argues that, knowledge on matters of religion being unobtainable, we ought to leave religion alone. Both views are equally reactionary; yet at the same time both are equally acceptable to the Philistine who loves stagnancy because he dislikes to do any thinking for himself. While even the atheist's denial will be helpful, the agnostic position is neither theoretically valid nor practicable, for it leaves all opinions, be they scientific, superstitious, or mere guesswork, on the same level of equal incommensurability. And this verdict holds good for agnosticism in all forms, also for Mr. Spencer's popular agnosticism adapted to the demands of the average reader, and even for Kant's idealism which is both deeper and more dignified. Kant demonstrates in his *Critique of Pure Reason* the fallacies of the God-idea and the impossibility of offering any positive proof in its favor; yet he proposes in his *Critique of Practical Reason* to postulate the existence of God. If God is to be of any account at all, his existence must not belong to things hypothetical. A God whose existence has to be postulated is worse than no God at all, and even atheism is preferable to that undefined theology which rests its ultimate argument upon our utter ignorance of things supersensible.

If we wish to be clear on this subject, which has been surrounded with the clouds of dust raised by the quarrels of schools and factions, we must trace God in the facts of our experience. If he is not there, he is nowhere; if he is only beyond the clouds or in the realms of metaphysics, his existence is of no account and we might as well do without him.

The monotheistic God-idea is very old. Centuries before the prophets of Israel purified the Jahveh cult, there were philosophers in Egypt and priests in Mesopotamia who proclaimed the supremacy of the one God. An ancient brick found at Ur, whose date has been ascertained to be 2500 B. C., contained the following litany for temple service:

"In Heaven who is supreme?—Thou alone art supreme.
On earth who is supreme?—Thou alone art supreme.
The word is proclaimed in Heaven,
And the angels bow their faces down."

And a hymn of about the same date reads:

"Long-suffering Father, full of forgiveness,
Whose hand upholds the lives of mankind,
Lord, thy deity is as wide as the Heavens
And it fills the sea with awe."

In the history of the nations Israel has become the prophet of this monotheism. We can still trace in the Old Testament the process of purification. The tribal deity of Jahveh, worshipped under the symbol of a bull in the national sacred cities of Bethel and Dan, gradually changed into the universal God of justice and truth, until in the early Christian era he was conceived as the triune Father, Son, and Holy Ghost,—which in philosophical language means God is *Grund*, *Ursache*, and *Zweck* of existence. He is (1) the *raison d'être*, or law of being, (2) the evolution of life in its onward aspiration, and (3) the ideal and its final consummation, the aim and purpose of existence.

Now, we must in all religious ideas distinguish between the symbol and its significance, the myth and its meaning, the allegory and its lesson. Accordingly, we must analyse the God-idea and distinguish between those features which can be retained as literally true and those which are allegorical. Literally true are those features alone which can be traced in the facts of experience and established on good evidence as unequivocal truth.

In the mythology of monotheism God is called the Father, the Lord, the Creator, the Judge. What can these terms mean? Have we to understand that God is a man as we are, a parent who pro-

creates children that grow up and develop in his own image? Shall we regard Him as a king after the fashion of earthly rulers, surrounded by angels and archangels, as our sovereigns are by ministers of state and secretaries? Shall we believe in the judgment-day as pictured by Michael Angelo and other Christian artists? The atheist rejects the belief in God on account of the crudities of the myth if literally accepted. And he would be right if these crudities were the essential features of the God-idea.

The child-like theist says: "The world is governed by a good Father." The atheist says: "The world is governed by law." Both are wrong. There is no governing at all; the term governing is a pure allegory which in its literal significance does not apply to the processes of nature. The truth is, there are uniformities of nature which can be classified in universal formulas describing all possible happenings of a special type. Thus the law of gravitation does not govern the motion of falling bodies and of the coursing planets, meteors, and suns. The law, so called, is a descriptive formula which states in the tersest way possible the mode of action which things of a definite quality will take under certain conditions. That which makes the stone fall is the stone's gravity, which is an attribute of its mass, and the action of the stone's gravity depends upon the stone's position in the universe,—mainly upon the gravity (i. e., the mass) of the earth. There is no God and no law which dictates the course of action, but the things act on account of the inherent qualities which constitute them. The world is not a world of slaves, but a free play of uniformities. There is not a metaphysical or theological power that forces things, be they animate or inanimate, to pursue a certain course, but all things act in a definite and determinable way by virtue of their own nature. A thief steals when the occasion arises, and an honest man pursues the straight path of righteousness, as the cat will jump at the mouse and the oxygen will combine with the carbon. None of the events of the world happen at the dictates of either a God or a law, but because things are such as to act thus. Things consist of motor impulses, shaped by previous conditions, and, according to present conditions, taking a definite course.

Is this not atheism? May be it is. All depends upon the definition of the word. We must not be afraid of words; and if we find that atheism is right, let us frankly confess that we are atheists. Thank God that the days are past when atheists were burned at the stake, and let us be assured that, on the one hand, the best theist is more of an atheist than he may grant you; while, on the other hand, what is more important in our present discussion, the most rabid atheist is more of a theist than he himself is aware of. Let us see how. We shall start on the much abused road of the atheist and grant all that can be granted him.

A scientific world-conception needs no God. Laplace answered Napoleon, when asked why there was no mention of God in his *Celestial Mechanics*, "I have no need of that hypothesis," and every man of science can give the same answer, in the same sense. Further, in ethics, there is no need of the God-idea to teach morality. The God-idea is a convenient assistance to the teacher, but a moralist of a solid philosophical education is not in need of God. Kant, for instance, opens his work on *Religion Within the Limits of Pure Reason*, as follows:

"Morality, in so far as it is based upon the conception of man as a free being who binds himself through his reason by absolute laws, is in need neither of a superior being than himself to recognise his duty, nor of any special motive than the law itself that is to be observed."[1]

Nor can it be said that our heart is in need of God. Christian mystics constantly have the word God in their mouth, but closely considered, the God of Jacob Böhme, of Johannes Tauler, and other theosophical philosophers is not very different from the Buddhist Nirvâna, and we might as well express the very same sentiments in an atheistic terminology.

We may grant even more. The craving for prayer which appears to be ingrained in the human heart seems to demand the existence of a God; but what did the Son of Man, who was conscious of his Sonship of God, say when his disciples requested him "Lord, teach us to pray!" He taught them a prayer which may be char-

[1] Preface to the edition of the year 1793. Leipsic: Modes and Baumann, Vol. VI., p. 161.

acterised as a prayer of weaning. The Lord's Prayer is a prayer only in its form; in its substance it is a vow to abandon prayer in the literal sense of the word. If a friend of yours prays you to do him a favor, he attempts to induce you to comply with his wish. The Lord's Prayer attunes the heart to comply with God's ordinances, whatever they be, and to submit to his will. "Thy will be done" is not a prayer in the proper signification of the word. There is but one prayer in the Lord's Prayer which appears to be a genuine prayer, and we have reason to believe that it suffered by being translated into Greek, viz.: "Give us this day our daily bread." The oldest versions vary greatly, and a reconstruction in the original Aramaic which is now being attempted will at best be hypothetical. Judging from other passages which express the views of Jesus of Nazareth on the same topic, the significance of the fourth prayer will be clear, if viewed in the light of the sentence, "Take no heed of the morrow." Accordingly we are inclined to interpret it in the sense: "Let us be satisfied with our daily bread," and thus the fourth prayer would, like the other prayers, be a mere variation of the general theme expressed by Christ in Gethsemane: "Not my, but thy, will be done."

Here we have a remarkable coincidence between theism and atheism. Buddhism, commonly regarded as an atheistic religion, rejects prayer as an irreligious practice and replaces prayers by vows. Analyse the Lord's Prayer, and it consists of self-exhortations, of vows, which serve the educational purpose of a high-minded self-discipline.

* * *

Having made all these concessions to atheism, we shall now build our God-conception upon the very foundations which atheism leaves us. There are uniformities of a definite type in nature, which render it possible to describe natural phenomena, and even predict the course of events to come. These uniformities are the conditions of science. On the one hand they make the phenomena of the world classifiable and thereby comprehensible; and on the other hand they make possible the development of an organ of comprehension called "reason." Reason is simply the faculty of

tracing samenesses by designating the same type of phenomena by the same name. By comprehending samenesses we can anticipate the future and by anticipating the future we learn to seek the useful and to avoid evil. Thus, uniformities naturally produce purposive action. The apprehension of future results leads to adaptation, and adaptation pursued with conscious intention is the condition of ethics.

The uniformities of nature constitute in their totality a grand harmony which is commonly called the cosmic order; and this cosmic order comprises the motions of stars no less than the chemical combination of atoms, and is the principle which permeates the realm of man's life, including his highest intellectual and moral aspirations.

What is the *raison d'être* of these uniformities? Have they, such as they are, been ordained by the Creator, or are they accidental similarities? Here lies the whole God-problem in a nutshell, and this is the answer that science gives: "They are neither ordained, nor are they accidental: they are intrinsically necessary."

We can best explain the peculiar meaning of the term "necessary" by a reference to mathematics and logic. The philosophical term "necessity" must not be confounded with "compulsion." Philosophical necessity, in the sense in which we use the term, does not imply the curtailment of liberty, but denotes simply that certain things (including the future course of events) are conditioned in a definite way; they can be described; their nature, their behavior, their fate, can be determined by descriptive formulas. If a wrathful man is not checked by the fear of punishment, he will, if he be unimpeded, maltreat or even slay his adversary. He commits the crime of his own free will according to the character of the motor ideas of which his soul consists; he acts as he wants to act, without any external compulsion and yet with necessity. It is that inner necessity which is determined by himself, by his own character. In the same way the needle of the compass points toward the north by virtue of its magnetic nature. According to the physicist's interpretation of the process, the needle, when left at liberty

to adjust its position, will adapt itself to the magnetic lines of force that pass through it.

Mathematics teach us to comprehend the nature of necessity, in the philosophical sense of the term. "Necessary" is not that which suffers violence or is forced by some external pressure, but that which is definitely determinable. $1+1=2$ is a statement which carries with it an intrinsic necessity. The same is true of $2+2=1+3$ and of all arithmetical and geometrical theorems. Thus the sum of the angles of a triangle in Euclidean or plane space is always equal to two right angles; and all angles having their vertices on the circumference of a circle and subtended by the same chord are equal. There is no compulsion whatever here, but there is necessity,—that which in common parlance we call "a matter of course."

Mathematics, logic, and all other formal sciences are purely ideal constructions. An action is done, or rather, it is thought, and the results that are thereby established are noted. The results will always be the same if the process of construction be the same, and thus an ideal—i. e., a purely mental—world of samenesses, of uniformities, is established, which when applied to the realities of the material world serves to classify its phenomena, to describe them, and to predict their future course. The formal sciences in brief describe that which is necessary and arrange all necessities into a methodical and comprehensive system which assists us in seeing at a glance that, given some function under definite conditions, certain results will take place as a matter of course. Here lies the explanation of the cosmic order with all that it implies, science, purpose, ideals, and ethics.

Now mathematics and all the other formal sciences are descriptions, they are a system of formulas, and the question arises, Are these formulas pure inventions, or is there any reality that corresponds to them? There are philosophers who claim that the formal sciences do not formulate truths but are a *lusus intellectus*, a mere play of the mind. Even Kant took the word "ideal" in the sense of "subjective" which practically changed all ideal conceptions into imaginary magnitudes. On this little mistake, viz., the

identification of "ideal" and "subjective," which is inadvertently made by the great Königsberg thinker, hinges the philosophy of his critical idealism with the bold assumption of the ideality, that is to say the illusory nature, of space, time, and the categories. No wonder that his system lacked system and opened a loophole for agnosticism which has appeared in the shape of the doctrine of the unknowableness of things-in-themselves. Thus he arrived at a conclusion in which his radicalism offered a safe refuge to the reactionary obscurantism of his time, and Kant himself made the proposition that he "must abolish knowledge to make room for belief,' which stands in an irreconcilable contradiction to his original aspiration for certainty of knowledge by avoiding both dogmatism and scepticism, i. e., Wolf's dogmatism with its unfounded assumptions, and Hume's scepticism, which is a denial of strict science, changing labor into sport, certainty into opinion, and philosophy into philodoxy. Kant aspired after certainty and arrived at nescience.

Let us briefly characterise the nature of the term "ideal," in the sense in which Kant ought to have used it when speaking of Space and Time as being ideal, as belonging to the realm of ideas!

An idea is a mental picture representing some objective reality. The objective reality need not be a concrete thing, but may be a general quality or a universal relation; it may be a combination of things not yet realised, and it may be a mode of conceiving mere relations under a common aspect. In all events it must be representative, it must point beyond or outside itself, it must be a symbol of something. The nature of ideas is their significance, that is to say, ideas are not purely subjective; they are subjective pictures of objective presences of some kind. Thus the ideal (things belonging to the realm of ideas) is not *eo ipso* identical with the purely subjective or illusory, but on the contrary, its most characteristic feature is representativeness, as signifying some objective reality.

Now we ask, What is the nature of the realities represented in the purely formal sciences? They are, John Stuart Mill and the whole Empiricist School notwithstanding, real presences in the

world. We may call them the purely formal laws of nature if we bear in mind that they are not laws, not coercive factors, but intrinsically necessary uniformities. Nor are they many various uniformities; they form one great system. They are one throughout and every special formula is but one aspect under special conditions of the same fundamental idea which may be comprised under the name of "universal consistency." They form in their totality an organic whole, a body of necessities which are all equally self-evident and even in their greatest complexity a matter of course. And they are objective presences in the real world of material things. They are the formative factors of the world. While all things are transient, they are eternal; while all existences are subject to change, they are the same forever and aye. They are uncreated and uncreatable. They are the measure of truth and standard of right and wrong. In a word, they are glimpses into the realms of the eternal. But consider! Geometry, arithmetic, and logic are only partial glimpses into the glorious harmony of the divine constitution of existence. There is also, as it were, a mathematics of ethics, and a geometry of religious aspirations, the practical importance of which is more easily felt than understood.

From the eternal moulds of these formative presences of existence all things proceed, and in them the forms of all things are preserved in a universal and superreal existence which knoweth not of origin or dissolution, not of birth or death, not of the anxieties of life and the fear of annihilation.

The plural form of the realities which correspond to the ideas of the purely formal sciences, is justified only because we become gradually acquainted with them. They appear to the growing intellect as a plurality of factors. But the truth soon dawns on a thinking mind that they form one grand system. We spoke of them purposely in the plural, for the sake of not anticipating the main implication of the God-idea, which consists in the organic unity of the world-order, as one consistent body of uniformities which may, not inappropriately, be spoken of as a personality, not human but divine, not bodily but spiritual and ideal, not individual, i. e., in a special place and having states of temporal succession,

but eternal and omnipresent. It is obvious that the unity of all formative factors is their most essential feature, for every single aspect is complete only when viewed as an aspect of this whole organism. When we try to realise the importance of these presences as a unity we shall soon find that they possess a direct and personal relation to the life of every one of us, which (if we remain conscious of the allegory) may very well be compared to a father, a lord, a judge. Besides it partakes of all those qualities which have, since time immemorial, been regarded as the characteristic features of the Deity. In the unity of these presences we have the Allhood of existence, which is the formative principle of the world, constituting the cosmic order. This Allhood is omnipresent and eternal. It comprises everything in its loving embrace. Man has originated in its image, and reason is but the reflexion of its intrinsic consistency. It is the prototype of logic, or, as the Fourth Gospel has it, "The Logos that was in the beginning," and thus it is the prototype of all truth. It is the world-reason, or, as it is called by the Taoists, the Tao of which Lao-Tze the venerable founder of Taoism says:

> "It quickens all things and cherishes them;
> It quickens but owns not;
> It acts but claims not;
> It brings up but rules not."

This Allhood is not an imaginary assumption, but it is the most real factor of life. It is not only real; it is superreal in the literal sense of the word, that is to say: It is not only a presence in the concrete things of this actual world in which we live; but it applies generally and would be no less present in any possible world that might originate somewhere, somehow, as if by magic. Nay, it holds good for purely fictitious worlds which, after the fashion of fairy tales, endeavor to establish other laws and arrangements, that would supersede the laws of nature with which we are familiar. Even the dreams of magic do not abolish causation; they only attempt to alter its concatenations, and its miracles are viewed as necessary results from the supposition on which they are based.

So little can we, even when we fly into the realms of fancy, discard necessity itself.

The attempt has been made to explain the world-order as a creation of God, but here the traditional conception of theism breaks down. For this omnipresence that permeates all existence is beginningless and intrinsically necessary. If this formative omnipresence be not God, if it is assumed to be different from God, then it is undoubtedly God's superior. God would have to comply with it, in order to construct the world correctly; he would have to utilise its norms of logic and consistency, in order to be wise; he would have to adopt its eternal principles of truth and right, in order to be moral. In other words, it would be the ultimate authority of God himself. It would be the deity to which even the creator was subject.

A duality of a Divine Omnipresence and a God-being is obviously absurd. For a God-being that is subject to the eternal norm of rationality, of truth and righteousness, is not God in the sense that we should use the term to-day. Such a God would be a being, a creature, an individual existence; it would be *a* god, but not God; it might be a Jupiter or a Brahma, or a world-soul. It would be much greater than any human being, but would still remain a creature such as we are, not the Allhood of existence, but a concrete, although ethereally spiritualised entity.

We need not enter into all the difficulties into which the assumption of a distinction between God and the omnipresent world-order would lead us. At any rate: a God-conception which individualises God and conceives of Him as a concrete being is mere paganism, whether or not it assumes the name of Christianity.

But while we are conscious of the symbolic nature of the various terms of the God-idea, we must not look upon them, when considering their significance, as untruths. The main difficulty of a purified God-idea probably consists in understanding that truths, as well as all things that are purely formal and unmaterial, are after all undeniable presences, possessed of real effectiveness in this world of actualities.

Let us see whether by purifying the traditional God-conception, we have lost anything of its religious significance.

All the attributes which have ever rightly been predicated of God are here combined in the Divinity that shapes the ends of the cosmos as a whole as well as in all its details, where we are confronted with immutability, omnipresence, eternality, universality, omnipotence, omniscience, justice, omnibeneficence, and an all-embracing love, long-suffering, and mercy.

Every one can readily see that the God of philosophy is immutable, eternal, universal, and omnipresent, for God is defined as the abiding in the transient, as the law of uniformities in the variety of natural phenomena. Although it may be difficult to realise vividly in one's mind God's omnipresence, from which no one can hide even his most secret thoughts, the idea itself is clear enough. But a few words are needed on omniscience, omnipotence, omnibeneficence, long-suffering, and love.[1]

It is understood that the omnipresence of the formative factors of the world is not possessed of a knowledge such as is man's. It is a higher kind of knowledge; it is omniscience, not science. Science is discursive, walking as it were on crutches and proceeding step by step. Omniscience is argument and conclusion in one. It can dispense with investigation because it possesses the result before it searches for it. It is the automatic workings of the truth which appears in the unfailing correctness of so-called natural laws.

When speaking of God's omniscience we are apt to think of his thoughts as being like ours, transient and discursive, but they are eternal and omnipresent, and in this respect infinitely different from human thoughts. Whenever we are confronted with a truth that is found to be eternal and intrinsically necessary, be it a norm of reason or a law of nature, we are in the presence of a thought of God. Science formulates these laws, and every progress of science affords us a deeper insight into the character of God.

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[1] I may be pardoned here for repeating myself. The next four paragraphs on the qualities of God appeared with slight additions and alterations in an article on "The Unmateriality of the Soul and God" in *The Monist*, Vol. VIII., No. 3.

Further, God's omnipotence is not a force that can be measured in footpounds. His strength is not power of muscle nor the might of armies. God's omnipotence is the irresistibility of His omnipresent will. It is the irrefragability of what appears to the scientist as the silent workings of natural law; it is the inevitable efficacy of the still, small voice, which on account of its apparent passivity, its long-suffering and patience, makes on the superficial observer the impression of non-existence. But experience teaches that its quiet ways are unfailing.

Finally, as to God's omnibeneficence, it is natural that primitive people did not see the goodness of God. They were too dependent still on the forces of nature to see the deeper aspects of the divine law that works for progress in the intellectual world and not less in the moral world. The soul of the savages contains too little of God's true nature to know Him correctly; their faculty of perception is still too dull, and therefore they see Him only in the thunder-storm and hear Him not in the still, small voice. But for that reason God is in every one of us, cherishing all in loving embrace. The still, small voice is speaking, addressing every one of us personally, but we must learn to listen.

And what do we gain by a purification of the God-idea?

First of all, the idea of God has thus become not only scientifically tenable but an intrinsic part of all science and philosophy. It is recognised as a name comprising all that which is the bread of our spiritual life. This God-conception reconciles Religion and Philosophy and affords a basis for a truly scientific theology.

Secondly, it transfigures tradition; it fulfils its aspirations without destroying its ideals. It explains the purport of the symbols of religious truth and teaches us to distinguish between the essential and accidental. This God-conception reconciles Religion and History and explains the errors of the past as necessary phases in a normal development, which, according to the law of evolution, is increasingly tending truthward.

Thirdly, it will liberate us from the bondage of the letter. We shall thereby learn to distinguish between symbol and truth, ritual and its significance, mythology and religion, dogma and doctrine,

that is to say, the lesson of the dogma. The pious need no longer fear Bible criticism and the destruction of their cherished idols; for they will understand that the fundamental truths of religion are based upon the recognition of that which is eternal. This God-conception digs down to the bottom rock of the conditions of a religious world-conception and affords a foundation which can never be shaken in the progress of science and civilisation.

These are great advantages, which will be appreciated by all those who have ever seriously grappled with the problem of the existence and nature of God.

Before we close our discussion I wish to touch briefly on a subject which may to many yearning souls be of incalculable importance. I wish to forestall misinterpretations which will actually arise in those to whom the present view is yet novel.

This purer God-conception loses nothing of the definiteness and personality of the old God-conception. A surrender of the letter does not imply a surrender of the spirit that God is our Father, our Lord, our Judge, our Comforter, our Saviour, the prototype of the incarnated Christ-ideal, the Way, the Truth, and the Light.

This God-conception is not the old pantheism which identifies God and the All. God is in all things, but He is also beyond and above all things. Nor is He the sum-total of all things. God is the Allhood of existence, but in addition he is the condition of any possible existence. He is *in* nature and yet different from nature. He is *in* reality but different from all real things. He is the supernatural in nature and the superreal in real things. He is the formative of things material, himself unmaterial.

This God-conception does not teach the impersonality, but the superpersonality of God. God is the condition of all personality. God's nature is not an indefinite omneity, for He is possessed of a very definite character constituting the significance of existence as a whole and laying down the purpose of all existence, as well as imparting a definite direction to all life aspirations which finds expression in the evolution of solar systems, of nations, of individuals.

God is further not an indifferent being to us. He has a personal and private relation to all His creatures, being nearer to every one of them than the beat of their hearts and the neural vibrations of their brains. He is in them and yet different from them and infinitely high above them. He is their life, their home whence they start, and the goal whither they travel.

God is not like us, but we are like him. He is the light of our life, He is the mariner's compass which guides us, and the anchor of hope on which we rely. Unless we feel his presence, we shall find no peace in the restlessness of the world. Unless we sanctify our lives by the purport which his existence imparts to all life, we can find no comfort in our afflictions. Unless we recognise that our soul is an actualisation of his eternal thoughts, we shall not learn to fight the right way in the struggle for existence. Unless we listen to the still, small voice that teaches us our duties, we shall not obtain that blissful assurance which the childship of God alone can afford.

EDITOR.

DISCUSSION.

The preceding article on "God," which was twice used as a lecture, elicited before the philosophical club of the University of Chicago a lively discussion, in which problems closely connected with the God-idea were presented. On another occasion before the philosophical club of the University of Ann Arbor, where no discussion took place, the lecturer was afterwards privately interrogated by several inquiring minds. And since these topics may be of interest to our readers, we shall reproduce such of the questions and answers here as contain the gist of our conversations:

Question 1. "Your formulation of the God-problem contains two sides; one part of it is strictly scientific, the other religious. How do you unite both?"

I have endeavored to present a plain statement of facts and have then given a religious appreciation of those factors which shape the world at large and determine our lives, "roughhew them as we may." These factors are eternal neces-

sities: that is to say, we can understand that they must be such as they are and cannot be otherwise. They are not a plurality of factors, but are one throughout. They are uncreated and uncreatable, and therefore not the ordinance of a deity. They form an inevitable omnipresence in which all things live and move and have their being. On the one hand they are not an individual being of concrete existence; they are not here nor there; but they are truly everywhere at once. They are not this nor that particular existence which says "I am," excluding any other "thou"; they are not anything particular; they are the universal in the particular. Yet, on the other hand, they are neither nonentities. Although they are not concrete entities, they are none the less real. Indeed, they are the most important feature of everything real. They would remain the same, even though all material reality were annihilated. In this sense they are superreal. If nature did not exist, they would remain true; in this sense they are supernatural. They constitute the possibility of mentality and of moral aspirations and thus they build a higher realm of spiritual life upon the purely physical domain of existence. In this sense they are superphysical. Being the purely formal features of existence, they are the prototype of reason and the foundation of everything intellectual, mental, spiritual.

Although universal, they are not indefinite; on the contrary, they are the determination of every definite suchness in the world.

Although not particular and not individual, they are not lacking in that which constitutes personality; they possess a specific character which is sufficiently pronounced to lay down for all its creatures certain ascertainable rules of conduct and a standard of moral goodness.

These are facts concerning which there can be no disagreement; and they possess a direct bearing on our lives. They are the realities in the experience of mankind which were formulated under the name of God, and on our attitude toward them our entire life depends—our world-conception, our ultimate motives of actions, our moral ideals, our comfort in the vicissitudes of fate, our destiny in general.

Should this realm of the most important realities remain neglected? Should the superreal, the supernatural, the superphysical be left unheeded because its truth is more subtle than the grossly real, the crudely natural, the merely physical, the material? Certainly not. The historian can watch the growth of an appreciation of these higher factors of life in the development of religion which instinctively discovers the most salient moral truths and expresses them in allegories and parables. Are the parables untrue because they must not be taken literally? No, and a thousand times no! Religion is not the product of priestcraft but is the natural outcome of a groping after the truth. Mythology is the dawn of religion, as alchemy and astrology are the beginning of chemistry and astronomy. There is a close analogy between the religious and scientific evolution of man; and let us bear in mind that evolution has its phases; it passes through several stages; and if we have succeeded in attaining to the solution of a great problem, it will prove to be only a starting-

point for new problems. Evolution is never closed. Life is growth and completion, and consummation would mean death. The religious life of mankind is no exception. There are still higher vistas of a deeper religious revelation in store for us, and they will justify the religious aspirations of former periods. They will come to fulfil, not to destroy. They will teach us the reality of the still, small voice in the human heart and afford us a key to the significance of the mythology of the savage and of the parable as it was crystallised in mediæval dogmatism.

Question 2. "Is not your God-idea a mere abstraction and therefore lacking in the vitality which is indispensable for a religious conception?"

This question rests upon the assumption, which is quite common among many people, that abstract ideas are empty, unmeaning, and unreal. This is an error. Abstract ideas are, if they are but true, as significant as their poetical personifications; there is only this difference between the two, that while abstract ideas are more definite, the people who are not trained in exact thinking are more impressed by poetical descriptions than by concise formulas.

To attempt giving a philosophical definition of God in a missionary sermon addressed to the Zulus, or in our midst, to a Salvationist meeting, would be as much out of place as trying to teach mathematics or explain the falling of stones by the Newtonian formula to a child of three or four years. But because abstractions are empty and unmeaning to the unschooled, they are of the greatest importance and full of significance to those who have acquired the habits of exact thought. He who speaks of abstractions as being empty, only proves that he is still in the period of mental infancy for which the milk of mythology is alone the proper food. He can not yet digest the meat of scientific accuracy.

Question 3. "Is not a certain anthropomorphism allowable in speaking of God?"

Anthropomorphism in speaking of God is not only allowable, but, according to circumstances, even indispensable, for it is the means and the sole means by which the untutored masses, the half-civilised races, and all the many adult children that we find everywhere, can be approached.

Anthropomorphism was a necessary phase in the religious evolution of mankind and will remain indispensable even to the scientific thinker for the purpose of artistic and emotional expressions. Only we must remain conscious of our anthropomorphism and must avoid drawing conclusions from terms which are purely allegorical.

For instance, God is not a father in the literal sense. Take the allegory in the literal sense, and the highpriest, Ananias, was justified in denouncing the very thought of it as blasphemy. On this ground Mohammed rejects the Christian doctrine of the sonship of Christ. But understand that it is an allegory, symbolising God's intimate relation to every one of us, and it will be difficult to find a more beautiful and more impressive simile.

Question 4. "Do you regard this view of God as compatible with the Christian conception of God?"

It is not only compatible with the Christian conception, it is the Christian conception itself, in its matured and purified form. Any one who holds the traditional conception of God will, as soon as his mind becomes scientifically trained, be confronted with problems as to the nature of God. In the face of the truth that the world order is not made but intrinsically necessary and eternal, he can no longer look upon God as an individual being who makes worlds as the watchmaker makes watches. If it is impossible that God ordained those uniformities which are commonly called natural laws, the question rises, "Is God subject to certain universal necessities, or if not, what is his relation to them?" The solution here offered which regards every law of the cosmos, everything eternal in nature, everything universal in our experiences, as a part and parcel of God himself, will appeal only to those who have been confronted with the problem. Those who know of science and philosophy from hearsay only will not be in need of any reconciliation between religion and science, and we must excuse them for regarding the very attempt at comprehending the significance of God as a waste of time and idle talk.

Question 5. "Your conception of God is quite simple and apparently acceptable to the theist and the atheist. But it takes away all mystery."

Well! The purpose of every scientific and philosophical investigation is to do away with a mystery of some kind. An unsolved problem mystifies us, but when it is solved the facts are clear, and we might repeat with Schopenhauer, "*Simplex veri sigillum.*"

Question 6. "Is not mystery God's very nature?"

Many people love the mysterious and are afraid of clear thought; but if God really represented the mysterious, i. e., the inexplicable, and atheism clear thought or the solution of problems, the duty of science would be to reduce the domain of God to the utmost and if possible to let him entirely disappear. But God, if he is God at all and not merely the stay of superstition, is the light of the world, not its darkness; he appears in the order of the world and not in the supposed reversions of the world-order, commonly called miracles; he is the principle that pervades science, that conditions reason, and enhances progress, not a personification of obscurantism, ignorance, and reaction.

Question 7. "Do you not explain too much? Do you not explain God away and leave intangible relations, pure form, and natural laws in his place?"

Is it possible to explain too much? Does a phenomenon which is understood disappear? The reality of God remains the same whether or not his nature be understood. But we have the advantage of avoiding the errors connected with a literal belief in the allegories under which God is comprehended by the uneducated masses of mankind.

Do you think that music ceases to be music if we understand that the objective reality outside of us are air-vibrations, the intervals of which possess definite mathematical proportions? The beauty of music remains the same whether or not we understand its nature. It is the same with fire, electricity, life, and all other processes of nature. Fire was formerly supposed to be a peculiar stuff; it was regarded as one of the imponderable substances and was called *phlogiston*. Since we understand that fire is a mode of motion and not an imponderable stuff, we know that the existence of phlogiston is a pure invention of the misguided imagination of former scientists, but fire is as real now as it ever was. Thus that ultimate *why* of existence which by one word we call God, remains as real to-day as it ever was of yore, only we know to-day better what it is.

Question 8. "Is not the term superpersonal a mere euphemism for impersonal? If God is not an individual, he cannot be a person, for every person is an individual."

Allow me the counter-question, What constitutes personality? I grant that every person is an individual which is possessed of particularity, being bodily always at a given moment in a special place. A person in this sense is here, not there, and in this sense God is not a person. But the personality of man consists in his being possessed of reason and pursuing rational purposes. What is reason but the recognition of the universal? If the universal takes abode in an individual, the individual changes into a person, or in other words, it acquires personality. God is the principle of personality itself; he is the condition that renders personality possible. In his image man is made.

Question 9. "Is not a person, an individual, endowed with reason, or intelligence, sentiency, and will?"

Yes! But sentiency is not a quality which is typical of personality; it is not a feature that belongs exclusively to man; it belongs in the same degree to the animal. That which constitutes the characteristic feature of personality is the intelligence of the universal in experience which is rendered possible through language. Every man is, in this sense, more or less an incarnation of the Logos. In him the notion has originated of that which remains the same in all changes. He sees things (as Spinoza has it) *sub specie æterni*, under the aspect of the eternal.

Allow me here to call your attention to the close connexion between sentiency and matter. All sentiency is particular; it is always in a special place and time; it is always awareness of material objects, involving material existence. Sentiency originates through a contact of matter with matter. Matter has been defined as the sense-perceived, and sentiency is the matter-perceiving. As to God, taking God now as the absolute Deity which in the Christian dogmatology is called God the Father, viz., the formative factors of the world, or God the Creator, we should say that He is unmaterial and is not a sentient being. God is called "holy," which means, separated from everything sensual and sensory. Yet God possesses a definite

character, and His character determines the nature of truth and falsehood, of right and wrong, of goodness and badness.

While God is not an individual, he is not devoid of personality. A system of truths, or rather of such norms determining the actual world as can be formulated in statements of fact, in laws or truths, may be called a spiritual body, an organism, or a personality; for it is that which constitutes the personality of a person. In this sense God is not a person but a personality. Further, God manifesting Himself in evolution and culminating in the God-man, God as the divinity of this actual world of ours, the second person of the Christian trinity, is even as a cosmic principle endowed with personality. He has a will, or to avoid even the semblance of anthropomorphic expressions, he is the determinedness of the process of evolution. The universe has a definite character which is that which makes for progress, the onward motion of mankind, the power that makes for righteousness; the bliss of goodness, the curse of sin; in a word, the verdict of consequence which inevitably follows every deed according to the law of causation. God has a will, and He pursues a definite design; only His will is not like the will of a man; His will is the eternal determinedness of events; His design is not the plan of a Prometheus (i. e., a fore-thinker), a meditating plodder, a deliberate worker and constructor; God's design is the immanent, eternal order of things and the unalterable, immutable necessity that naturally produces the obviously noticeable fitness of things.

After these comments the remark will not be misunderstood, that God is not an individual being but after all he possesses personality; yet his personality is different from the personality of man, which is the personality of an individual, and therefore I prefer to call God superpersonal.

Question 10. "Is God conscious of himself?"

The question should be, How does God become conscious of himself? Consciousness is a representation of oneself for the purpose of adapting one's conduct to the requirement of circumstances. God as the absolute unity of the formative factors of the world, the ultimate norm of all existence in its superreal eternality, is not in need of consciousness and could not, without gross anthropomorphism, be said to be conscious of himself. But God in his practical attitude as the manifestation of the Divine in the process of evolution necessarily becomes conscious in the ideal aspirations of mankind which are pursued with purposive efforts of a morally determined will. God awakens to consciousness in man, and here we are confronted with the deepest truth of Christianity. The self-consciousness of God is realised in the God-man, in Christ, in the man of good will, in him whom Buddhists call the Perfectly Enlightened One, and Taoists the Superior Sage, or Holy Man. Mohammedanism saw in the trinity doctrine a tritheism; it returned therefore to a rigid unitarianism which conceived God in his absolute aspect alone. To the strict unitarian the word of St. John, "I and the father are one," is as much blasphemy, as the idea of God as being love itself, appears as a veiled atheism. Mohammed

declares that God is unbegotten and he does not beget. Accordingly he abhors the idea of Christ's sonship. From our standpoint the Christian trinity doctrine is a decided progress upon the prior unitarianism as it deepens the God-idea and dwells on the importance of the divine immanence in the evolution of moral ideals.

Question 11. "Do you believe that mere relations are real?"

I do not believe, I know. Belief of any kind is excluded from this scientific formulation of the God-idea. There is nothing hypothetical about it; it is a systematised formulation of facts. These so-called mere relations, or these purely formal uniformities, are not substances, are not energies, are not metaphysical essences of any kind; yet they are the determinants of the world.

Real means that which produces effects. The German *wirklich* shows the significance of the term in its etymology. *Wirklich* is that which *works*, or produces effects, that which determines the suchness of causation. Now, the purely formal uniformities are the determinative element of the forms of reality. If anything is real, they are real. Their reality is different from the reality of a stone or any other concrete object; but it is rather more than less real. The reality of a definite piece of matter is in one place, but the reality of the law of gravitation is ubiquitous, and this is not a matter of belief, it is a scientific truth, demonstrable in experience and verifiable by experiments.

Question 12. "Is not belief an essential element in religion?"

No! Belief is not essential, but faith is. Belief is imperfect knowledge. Should not the perfect be better than the imperfect? Belief is only essential to religion if the word is used in the sense of faith.

We must distinguish between faith and belief. The Greek word πίστις means faith, confidence, trust; and the Hebrew אֱמוּנָה means firmness, reliability, trustworthiness. Belief in the sense of accepting unverified and unverifiable statements without investigation is not only not essential in religion, but downright irreligious. It is a sacred duty to inquire and gain as much light as possible on the main problems of life. To take for granted certain doctrines which are handed down to us by tradition, is immoral and must lead to the sanctification of superstition. What we need in life is not belief but faith. Belief is a matter of intelligence, or rather of neglect of intelligence; faith is a moral attitude. We need faith, i.e., faithfulness, firmness, stability, moral earnestness in life. We need the inspiration of good will toward all, above all we need a trust in truth. Indeed, we might condense the definition of the religious attitude to these three little words: religion is "trust in truth."

Question 13. "Do you think it possible that a clergyman could hold your views and remain in his church?"

Certainly I do think so. In fact, I have received letters from various clergymen—personally unknown to me—who thanked me for the light they had received from writings of mine on the religious question. Two of them wrote that, having

been affected by the contradictions between the letter of the dogma and the results of science, they had thought of leaving the Church, but now they saw their religious traditions in a new light and had thereby been enabled to find a conciliation between religion and science. They could now stay in the Church. They felt no longer the bitter self-reproach of hypocrisy, but could attend to their duties with a clear conscience and in gladness, as they had done in younger years before the scruples of doubt had attacked their souls. One clergyman told me that he had formerly seen no other way out of the difficulty than by turning to agnosticism for comfort, but now he saw that the religious evolution tended toward a scientific religion which would no longer be in need of mysticism.

How compatible a philosophical conception of religion is or can be with the active duties of a clergymen may be learned from the fact that Bishop Berkeley Herder, and Schleiermacher were bold and radical thinkers. I may also mention Pope Sylvester II. and other men of scientific distinction among the clergy. If my philosophy be incompatible with the position of a clergyman, the philosophies of these men, too, ought to be condemned as heretical.

I propose a philosophical interpretation of certain facts which have produced religion, the Churches, and dogmas; or rather I formulate the facts and show them under a certain aspect, that is all. I do not deny the facts; I deny only some unscientific explanations of these facts and replace them by a simpler explanation which abandons the antiquated metaphysical views and reconstructs the experiences of our religious life upon the basis of a rigid positivism.

Question 14. "But are not clergymen pledged to accept a belief in the letter of their dogmas?"

The pledges of clergymen when they are ordained are different in different churches. In some denominations they are very loose and allow much liberty; in others they are more direct; but, so far as I know, a belief in the letter is nowhere exacted. On the contrary, the most dogmatic churches give their members the greatest freedom of interpretation.

The faith of the church is laid down in the symbolical books, from the Apostolic Creed down to the most recent confessions of faith and platforms, but the very name "symbolical" implies that they contain truths which are not stated with scientific precision but in terms of symbols. The very first sentence of the Apostolic Creed, "I believe in God the Father," is an obvious allegory, and the allegorical nature of the term has never been denied. These formulations of doctrine are first of all historical documents; they must be treated with reverence and respect. We accept them as we accept the testaments of our parents and grandparents. They have been made to assist us, not to enslave us. It is our duty to think the same problems over again and revise the old statements in the fuller light of modern science.

P. C.

LITERARY CORRESPONDENCE.

FRANCE.

M. ALFRED FOUILLÉE'S *Psychologie du peuple français* is a clear, interesting, and finely conceived production. The main thing in such a task is not to discover the marked and distinguishing traits of a nations's psychology; what is needed is to set these traits into full relief, and to reveal their recondite connexions, for that portrait is most faithful in which every one recognises the old familiar features. But how have the characteristic traits of our nation been formed, to what sources are they to be referred—to race, to climate, or to history? In his criticism of these initial data, M. Fouillée has exhibited all the qualities of acumen and discernment which distinguish him. He finds himself ultimately led to the question of racial degeneracy, which at present is noticeably marked in the excessive diminution of French natality, and to casting a prognostic for the future, based upon his study of these facts as a whole. It is a delicate task, and one which touches at the same time the gravest problems of sociology.

In his introduction, where he treats of the factors which make up the national characteristics, as also in his first book on the European races and the part they represent in the French character, M. Fouillée submits to judicious analysis the current theories of race, environment, collective determinism, selection, etc. He points out their untrustworthiness in many things, their numerous breaches of logic, and ends by discovering in Gaul an aggregate of peoples which are distinctly characterised—Celtic, German, and Iberian (or, rather, Mediterranean) peoples. Gaul is not of Latin

blood; it is merely of Latin education. The Celt furnished to France a good initial material, solid and stalwart, but which was in need of amalgamation with a more personal, a more imperious, race,—an element which was afforded to it by the successive invasions of the Kymris, Visigoths, the Franks, and finally the Normans. The Mediterranean race added its contribution of flexible and lively intelligence, and also of tenacity. The fusion of the three races, writes M. Fouillée, ought to have ended by forming in France a rare and priceless harmony, "a sort of perfect accord, in which the Celt gave the tonic note, the Mediterranean the mediant note, and the German the dominant note."

M. Fouillée, as we see, attributes to the Germanic element an important rôle—a rôle so fundamental and essential that he does not hesitate to consider the exhaustion of this element in France as the prime cause of the present weakening and impotence, temporary though it may be. He assigns, therefore, with Gobineau, Lapouge, and quite recently, Mismer, considerable value to anthropological sociology, or the doctrine which explains history by the qualities of races, although he avoids the extravagances of this method. He does not go so far as to forejudge the whole future of nations by the mere testimony of the color of the eyes and of cephalic indices. He does not omit to attribute a large share to acquired characters, to education, to the incessant action of events; in short, to the transformation of the original elements, whether by racial mixtures, or by the training and discipline of centuries.

In truth, it is no difficult matter to ridicule deductions drawn from certain physical characters in national types. Various degrees of brachycephaly or dolichocephaly are merely the gross evidence of certain qualities the mystery of which is resident in the cerebral substance. But these characteristic qualities of races are real. The measure in which a race remains plastic, and the degree to which its primitive outward characteristics contribute to determining its evolution in time, is another matter. We do not know what conditions are required for the formation of a new type capable of a full and happy development; this is a question of the future. It is a question which is now directly put to our country.

M. Fouillée discusses it; he does not slur over the unfavorable facts, and yet he arrives at conclusions which border on optimism, and which it would be out of place in me to call into doubt.

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M. Aug. Dietrich has translated from the Spanish the work of a writer who is very highly thought of in his own country, M. Edouard Sanz y Escartin. The title of the book is *L'Individu et la réforme sociale;* it does not proclaim a personal theory; it is made up of discursive, interesting and often eloquent studies upon the individual and society, labor, wealth, savings, property, capital, the social duties of the ruling classes, the attitude of the working classes toward the problem of bettering their condition, science, education, morals, religion, art, law, and the influence of woman. M. Sanz y Escartin is a high-minded and exceedingly liberal man; but he does not seek for social reform in a radical change of present conditions; he rather expects it from intelligent and consciously directed action, and for this reason shows no sympathy for the decadent scepticism of Renan, or for the mechanical doctrines of the socialistic systems, according to which every question is based upon political economy, and never upon the morality of men.

M. Georges Renard, of Lausanne, presents us in his book, *Le régime socialiste* (the diametrical contrast of the preceding work) an idyllic picture of a society which has been constructed conformably to his own views. I shall not reproach him with having drawn up his outline-sketch with the utmost complaisance to his fellows. It is a requirement of our nature always to aspire after better conditions; the hard experience of life encourages such aspirations, and nothing is so unhealthy as moral indifference in the absence of all ideals. One cannot deny to the socialistic party the merit of having a belief, at least when it is represented by men of such kindly disposition as M. Renard. Socialisation, or the appropriation to common use of so-called natural properties (lands, mines, etc.), the suppression of inheritance, the valuation of individual production by the hours of labor (calculated by a very ingenious rule)—such are always the salient features of the doctrine. M. Renard does not conceal the difficulties attending the enforcement of

such a *régime*, and I doubt whether such a system would even give the good results which he hopes from it. Furthermore, what assurance have we, if this variation is introduced into the economical system, that social relations will vary in the precise direction which we desire and imagine they will vary? It is true that evolution is never ended, and that our societies will continue to change in the direction of some such ideal of justice as the socialistic school invokes, but it will certainly not be by tne means which that school proposes. At any rate, if we survey the rich variety of social types which exist in the world, we shall be led to the conclusion that they can be reconciled only by the creation of a mixed type, and that there will be incorporated in the practical *régime* that portion only of the doctrines of the schools which is involved in the natural play of the moral and economical facts. Think only of the numerous changes that are being effected in the social sphere before our very eyes by the extension of trade, by the inventions of science, and by the potent intervention of the sentiments of modern man! On this last point I shall remark, in opposition to blind conservatives, that the profound emotions of human nature can be satisfied in different directions. Every religious or social organisation exhibits the state of the soul that corresponds to it, and it is sufficient to point in this respect, for example, to the Chinese type and the American type to grasp vividly the difference of the sentiments which actuate each of these peoples.

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The *Année sociologique*, under the editorship of M. EMILE DURKHEIM, is a companion volume to the *Année psychologique*, which M. BINET edits.[1]

This publication contains: (1) Original memoirs, the first of which for the present year is by M. Durkheim and is entitled "La prohibition de l'inceste et ses origines," the second by Simmel, of Berlin, and entitled "Comment les formes sociales se maintiennent"; (2) Synopses of all the works and magazine articles of France and foreign countries which are of interest to sociologists,

[1] *L'Année psychologique* is now published by Reinwald.

—synopses which are grouped under special titles, so as to constitute by their arrangement a coherent survey of the subject. M. Durkheim, in his memoir, attributes the prohibition of incest to exogamy; that is to say, the prohibition of marriage between members of the same clan; and he at the same time points to the characteristic mark of the clan in the *totem*. All prohibitions of this kind which have been observed among lower societies owe their existence, according to him, to exogamy. But what are the determining causes? He rejects, for good reasons, the theories which attribute it either to some particular reason, as to the custom of infanticide of daughters (MacLennan), or to the inclination of primitive societies for war and pillage, or to some feeling for the bad results which are imputable to consanguineous marriages (Morgan). Resting his arguments upon the fact that the totem is a god, and totemism a cult, he is rather inclined to see in this custom a particular case of a very general religious institution, viz., the *taboo*. If now it be asked why the taboo applies to women, it would appear certain that the rigorous prohibitions in this regard must have been intimately connected with the ideas which primitive man held of menstruation and menstrual blood. And if finally we seek the reason why sexual interdictions applied exclusively to the members of the same clan, we shall find the reason in the fact that originally filiation was exclusively uterine, the children received the totem from the mother, and it was women through whom the blood was propagated which as a common possession constituted the unity of the group. To-day, doubtless, the prohibition of incest involves moral ideas which appear foreign to the practice of exogamy as thus understood. Nevertheless, M. Durkheim believes that the new habits have been actually engrafted upon the ancient rites, and his investigation shows that our present moral conception is the outcome of moral rules, in the formation of which it has played a ruling part; that it results, in fine, from elementary states of consciousness, variously combined, and masks the facts or customs which we could hardly have expected to find in its origin.

M. Le Dantec, in his *Évolution individuelle et hérédité*, sets forth an application of his doctrine of life to the special and much-debated subject of heredity, notably the heredity of acquired characters, on which, it seems to me, he has been successful in throwing some light. He starts out by studying the conditions of existence of plastids, and he so gives more precision to the notions of life and death, of variation, of vital competition, etc., to which the biologists frequently assign a vague or arbitrary meaning, because they directly investigate the phenomena of life in the higher beings, which are already on too complex a scale. His theory is based, in fine, upon the consideration of the "chemical states" of elementary plastids, as also upon the conditions which determine their variations and their evolution, with the result that we are enabled to pass without a break from the consideration of monoplastids to that of metazoans.

"The chemical nature of the plastic substances of descendants is identical with that of the plastic substances of ancestors." Such is the simple principle by which M. Le Dantec defines species. "Species" for him embraces all varieties of plastids which differ only as regards the ratio of the respective quantities of their plastic substances without there being among them any qualitative difference. "Variation" is necessarily effected upon the quantity of the said substances, or upon their quality; and it persists just as long as the plastid which has varied remains in the same condition of chemical equilibrium. If we consider now not the isolated plastids but the polyplastidular beings which possess an "interior *milieu*," and subsist by correlation and by co-ordination of their component parts through a "skeleton," we shall discover that the effect of variation upon general correlation in the interior *milieu* is not manifested in the general co-ordination of the organism as it might have been before the fixation of that co-ordination by the skeleton."

The formation of the solid or rigid parts of the organism limits the field of living activity. This remark paves the way for a reconciliation of the theory of the Neo-Lamarckians, according to which acquired variations can be inherited, with the theory of the Neo-Darwinians, according to which they are not inherited; it is im-

portant to note, for example, that "specifically acquired" characters may remain "morphologically latent"; it is chemical character that is hereditary; the son will have, not the shape of the father, but the shape which the father would have had if his skeleton had not opposed his assuming the characteristic form of equilibrium of his chemical composition.

The adherents of the theory of germ-plasm (Weismannism) regard mortality or immortality as properties of the more or less differentiated histological elements, even when these are qualities of polyplastidular agglomerations of the metazoan *individual* itself. Another thing is the *general death* of the individual, the destruction of the co-ordination which makes of it a being. Further, there is the *elementary death* of the histological elements, the chemical destruction of their plastic substances. The aged and skeleton-laden body of a metazoan is made up of young and vigorous elements which would ask for nothing but life for an indefinite period if the proper conditions were furnished them, and this it is that takes place in fecundation. By this important distinction, the objection regarding the transmission of artificial injuries is removed. "It is thus unreasonable to demand that the skeleton should be reproduced in the child with the exact *artificial* lesion occurring in the parent, to require that a leaden bullet lodged in some tissue should be inherited; the leaden bullet may have an hereditary influence upon the organism, but this hereditary influence will not reproduce the leaden bullet."

The foregoing synopsis gives scarcely more than an idea of the work of M. Le Dantec. I recommend it to my readers, both for its critical parts, which are very rich, and for its doctrinal parts, which are extremely novel.

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Social science—to judge from the works which are now publishing, and which are announced for the immediate future—has for some time been attracting a host of workers; I refer to social science as a whole, including also religious studies.[1] Pure psy-

[1] The plenitude of the work in this department has created a special series.

chology appears to be somewhat neglected, and at times leans toward general philosophical speculation, with which every one was so much discouraged, or it is entering on more intimate relations with the experimental work of the laboratory, and with biological studies; the craze for the marvellous, for hypnotism, etc., which only recently produced so many publications, has died away, although I should not say it is still extinct; and thus the saying of Charcot is verified, who, fatigued one day by the noise and bustle of the movement remarked, "It is a fad which will pass away."

In psychology, I have to point out two volumes only: one by M.M. Binet and Henri, *La fatigue intellectuelle* (Schleicher, publisher), an excellent production, as was to have been expected from these two authors; and another by M. L. Dugas, entitled *La timidité*, an ingenious and readable monograph.

Dr. James Sully's work, *Studies in Childhood*, has been translated into French by M. Monod.[1] The work, which is accompanied by a preface by M. Compayré, exhibits all the fine qualities of this distinguished psychologist; I shall make but one remark regarding children and drawing. My studies upon this subject have led me to believe that the child, like the adult, does not represent to himself things that he has seen,—I should even say, he sees things only under the form of a combined motor and visual scheme; and that the difference between a child and the adult, and even between artists, springs particularly from the accuracy and wealth of this scheme, or of what I have called our "images of interpretation," or "images of translation"; that if the child is satisfied with his crude drawings, the reason is that the unfinished figure drawn by his awkward hand is, nevertheless, an adequate symbol for him of the reality which he has in his head; that the same species of illusion exists also in the accomplished artist, whom we see satisfied with a figurative symbolism, more or less learned (in the cartoons of Puvis de Chavanne, for example); that the psychological pro-

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Bibliothèque générale des sciences sociales (F. Alcan, publisher), in competition with the *Bibliothèque sociologique internationale* (Girard and Brière, publishers).

[1] Felix Alcan, publisher. The remaining works, where the publishers are not mentioned, are also published by Alcan.

cess, in a word, remains the same from the childhood to the maturity of art.

I have further to mention the following authors and works: M. Cherfils, *Essai de religion scientifique* (Fischbacher, publisher); M. de Laveille, *Un Lamennais inconnu* (Perrin, publisher); and also the eighth volume of the *Année philosophique*, which is still edited by M.M. Renouvier, Pillon, et Dauriac.

LUCIEN ARRÉAT.

PARIS.

DISCUSSIONS.

ON FACTS AND OPINIONS.

Mr. Paul Shorey calls *Plato's Logic*[1] "a perverse book in support of a fantastical theory . . . a tissue of fallacious reasoning wrought on the frame of an impossible method . . . a series of fallacies resting on misapprehensions of the fair meaning of the text and context of his author." This is very plain language and I could have no objection to it, had my critic stated the above as his personal subjective opinion. But in truly American fashion he insists on his views as "a fact" and calls his subjective condemnation a "statement of facts"—believes that he has proved it "by citation and indisputable fact." In view of this, it becomes the author's duty to warn the readers of *The Monist* that they should not rely on such "facts." A fact is what can be proved to the satisfaction at least of a majority of competent judges. Now let us consider the following true facts which are in contradiction with Mr. Shorey's statements:

1. Mr. J. Adam, known by his investigations on Plato, says in the *Mind* for July: "There can be no question that Mr. Lutoslawski has rendered a great service to Platonic scholarship. Of his industry, zeal, and enthusiasm, it would be impossible to speak too highly; and his acquaintance with the literature of his subject is probably unique. His book is one of the most suggestive and stimulating works on Plato which the present generation has seen."

2. Monsieur Henri Weil, one of the most eminent Greek scholars in France, writes in the *Journal des Savants* for February, after a discussion on a point of disagreement: "Notre dissentiment porte sur une question qui a son importance, mait qu'on peut résoudre autrement que M. Lutoslawski tout en reconnaissant la grande valeur d'un ouvrage, fruit d'un puissant effort de synthése et qui marque une date dans les études platoniciennes."

3. Prof. Th. Gomperz, author of *Die Griechischen Denker*, acknowledged to be the most competent scholar of Plato in Austria, said in the meeting of April 20th of the Kaiserliche Akademie der Wissenschaften in Wien: "Lutoslawski hat keine neuen sprachlichen Untersuchungen angestellt, wohl aber die Resultate der vorhandenen, deren Urheber zumeist von einander nichts wussten, in so gut als vollständiger Weise mit einem staunenswerthen Aufgebot an Mühe und Sorgfalt, und mit einer nicht zu überbietenden Literaturkenntniss zusammengefasst und

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[1] See the review of Mr. Lutoslawski's work by Professor Shorey in *The Monist* for July, 1898 p. 621.

"mittelst einer eigenartigen, von ihm Stilometrie genannten Methode zu bearbeiten "und zu verwerthen sich bestrebt."

4. Prof. Felice Tocco, the most competent authority on Plato in Italy, says in No. 1 of *Atene e Roma*: "Quest opera importante, che per la ricca bibliografia "vince tutte le altre, e per la novità di alcuni risultati da tutte si dilunga, merita "senza dubbio alcuno un attento esame, principalmente da pa parte di chi non sia "affatto d'accordo con l'autore. Il quale da parecchi anni attende a questo lavore, "e le opere di Platone ha con grande studio frugate e rifrugate. . . ."

5. Professor Susemihl, well known in Germany for these forty years by his publications on Plato, though he dissents from the author on many points, writes in the *Wochenschrift für klassische Philologie*, No. 26: "Er hat mit kolossalem "Fleiss die ganze einschlagende Literatur durchmustert und mit gutem Urtheil der "Kritik unterzogen . . . hoffentlich erscheint ja von demselben bald eine deutsche "Bearbeitung und sie wird lebhafte Discussionen hervorrufen."

6. Prof. H. Struve, of Warsaw University, the most competent authority on Greek philosophy in Poland, writes in *Biblioteka Warsawska*:

"Nie wahamy sie twierdzic ze "dzielo to na dlugie czasy zajmie jedno "z pierwszorzednych miejsc w dziejach "Platonizmu.

"We do not hesitate to affirm that "this work will occupy for a long time "one of the first places in the history of "Platonic philosophy."

The above facts might easily be multiplied and they are here given only as samples of opinions of competent scholars on Plato's Logic in England, France, Germany, Italy, Austria, and Poland. These samples are taken at random from many dozens of reviews of Plato's Logic, and they are sufficient to prove that Mr. P. Shorey's opinions are not "facts"—because if they were, I could not have deceived six among the most competent critics in six different countries.

Besides, there is in Mr. P. Shorey's article one strange mistake for which no possible reason could be found in my work. He speaks of the "short time" I have taken to study Plato. Readers of Platonic literature know that my first book on Plato was published ten years ago and must therefore have been written earlier.

It is an inevitable consequence of the limitations of human nature that students of any subject cannot be brought to agree on *all* points, and no sober critic expects from an author who produces a new method of investigation and new results the irrefutable proof of all his opinions. I have repeatedly insisted throughout my work on the necessity of further investigations and I have nowhere claimed to have given a final solution of all difficulties implied in the problem of the interpretation of Plato. But Mr. Shorey misquotes me and misunderstands me on purpose, only to justify the French quotation with which he began his slaughter-business. I shall limit my answer to his objections to a single point only, to show his method. In the last four chapters of my work, pages 363–525, I have quoted over fifty passages to support my view that for Plato in his later stage "ideas exist in reason." Mr. Shorey selects one quotation at random which admits another interpretation and makes the reader believe that my interpretation is meant as a "translation"! My quotations of Plato's text are always given only as evidence on which I have based my views about Plato, and there is scarcely any attempt in the whole work to translate the given texts which I suppose are intelligible to my readers without help.

Similar in method are the other observations of Mr. Shorey. As he seems to like French, I may conclude: *les hommes que vous tuez se portent très bien.*

LOMZA, POLAND. W. LUTOSLAWSKI.

BOOK REVIEWS.

SOCIAL AND ETHICAL INTERPRETATIONS IN MENTAL DEVELOPMENT. A Study in Social Psychology. By *James Mark Baldwin*, Professor in Princeton University, Co-Editor of the "Psychological Review." New York: The Macmillan Co.; London: Macmillan & Co., Ltd. 1897. Pages, xiv+574. 8vo. Price, $2.60.

The present volume is a continuation of the author's studies in genetic psychology, published under the title of *Mental Development in the Child and the Race*, but is otherwise quite independent. Its thesis is the extent to which the principles of the development of the individual mind apply also to the evolution of society, an inquiry which deals with two main questions,—what are the principles of organisation, growth, and conduct operative in the mental life of the individual, and what additional principles, if any, are exhibited by society in its forms of organisation, progress, and activity? As pointed out by the author in his Introduction, there are several methods by which the inquiry could be conducted,—the Historical or Anthropological method, the Sociological or Analytic method, and the Genetic method. Of these, the first and second examine into the progress of social development and compare the results arrived at with what is known as to the development of the individual mind. The Genetic method comprises two fields of inquiry, the psychological and the biological, of which the former deals with the phenomena of human mental activity, and the latter with the phenomena of animal life, organic and psychical. Professor Baldwin prefers the *Psychogenetic* method, which he explains as being an inquiry into "the psychological development of the human individual in the earlier stages of his growth for light upon his social nature, and also upon the social organisation in which he bears a part." His work is necessarily, therefore, based on a study of child-life, and he states that its main thought is the conception of the growth of the child's sense of personality. Valuable as is the Psychogenetic method, it is evident that it is not complete in itself, or rather that its conclusions require verification by comparison with those derived from the other methods. Undoubtedly it is "based upon observed facts and may be controlled by them," but children vary so much among themselves that it is not always safe to generalise from observation of the actions of a few. More-

over, it must not be forgotten that the civilised societies of modern times have attained to an adult growth, so that there cannot be an exact parallel between the phenomena of child-life and those of social life. Hence the value of the Anthropological and the Sociological methods by which the childhood of the race is discovered, enabling the stages of development of society itself to be compared with those of the individual. It is only proper to say that Professor Baldwin recognises that fact, and himself occasionally employs these methods or makes use of their conclusions.

Professor Baldwin's work, which, as seen from its title page, has been crowned with the gold medal of the Royal Academy of Denmark, is divided into two books which treat respectively of the Person and of Society. The subject of Book I. is dealt with under the four heads of The Imitative Person, The Inventive Person, The Person's Equipment, and The Person's Sanctions. Part I., in which the Imitative Person is considered, is intended to be a more or less complete study of social and ethical psychology, so far as its topics go, and its concluding section contains a summary of its argument which gives an excellent idea of the nature of the work as a whole. "All our thought," says the author, "has led us to see that one "of the historical conceptions of man is, in its social aspects, mistaken. Man is "not a person who stands up in his isolated majesty, meanness, passion, or humil-"ity, and sees, hits, worships, fights, or overcomes another man who does the op-"posite things to him, each preserving his isolated majesty, meanness, passion, "humility, all the while, so that he can be considered a 'unit' for the correspond-"ing process of social speculation. On the contrary, *a man is a social outcome "rather than a social unit*. He is always, in his greatest part, also some one "else. Social acts of his—that is, acts which may not prove anti-social—are his "*because they are society's first*; otherwise he would not have learned them nor "have had any tendency to do them. Everything that he learns is copied, repro-"duced, assimilated, from his fellows; and what all of them, including him,—all "the fellows, the socii,—do and think, they do and think because they have each "been through the same course of copying, reproducing, assimilating, that he has. "When he acts quite privately, it is always with a boomerang in his hand; and "every use he makes of his weapon leaves its indelible impression both upon the "other and upon him!" After referring to the unsatisfactory state of social discussion, arising from the neglect of such facts, the author continues: "Once let it "be our philosophical conviction, drawn from the more general results of psychol-"ogy and anthropology, that man is not two, an ego and an alter, each of which is "in active and chronic protest against a third great thing, society; once dispel "this hideous un-fact, and with it the remedies found by the egoists, back all the "way from the Spencers to the Hobbeses and the Comtes,—and I submit the main "barrier to the successful understanding of society is removed."

It is somewhat strange to find Comte classed with the egoists, considering that his motto was "live for others," but apart from this the above paragraph is quoted

owing to its reference to the ego and the alter as opposed to society. In Professor Baldwin's system the growth of the child's personal consciousness has three stages, the *projective*, the *subjective*—that in which what was before projective becomes, through the exercise of the function of imitation, subjective—and the *ejective* in which the child refers to others the bodily experiences it is itself conscious of. The third stage witnesses the birth of the social self, the real self, which is *bipolar* as being constituted of ego and alter. These are born together, each being an imitative creation of the other, and each therefore being a *socius*. "The development "of the child's personality," says the author, "could not go on at all without the "constant modification of his sense of himself by suggestions from others. So he "himself, at every stage, is really in part some one else, even in his own thought "of himself. And then the attempt to get the alter stript from elements contributed "directly from his present thought of himself is equally futile. He thinks of the "other, the alter, as his *socius*, just as he thinks of himself as the other's *socius*: "and the only thing that remains more or less stable, throughout the whole growth, "is the fact that there is a growing sense of self which includes both terms, the ego "and the alter." This notion of self as a socius is excellent, and is consistent with the fact that each individual is *organically* a socius,—a unification of numerous elements which represent ancestral activities and give rise to what may be termed ancestral tendencies. If such be the case, then the imitation and the invention which form such important features of the child life should be regarded as efforts to reproduce what had been acquired by the past experiences of the general socius, or, from the individual standpoint, the personality which was the particular outcome of such experiences.

This consideration shows that the individual must not be merged entirely in the society of which he forms part. His emotions and sentiments, his instincts and intelligence, which form what the author terms "the person's equipment," although they are aroused into activity and guided in their action by the social environment belong to himself, as also do the "personal sanctions" which justify his conduct. Although the individuals belong to society, yet this is constituted of individuals who do not live that they may benefit society, although if they live rightly they will necessarily do so, but that their personalities may be fully developed in continuation of the growth of the sense of personality which takes place in the child through its social experiences. It is true, that without the aid of his social training a child left to itself would be little, if anything, above the animal. But this proves only that society is essential to the development of the personality, and it may be that, as language, play, and art are to be treated as social aids to invention in childhood, so society itself must be regarded as an aid to further personal development, and as having in the absence of this no actual *raison d'être*. Society undergoes development *pari passu* with the individual or with the series of individuals through whom it is perpetuated from generation to generation. Professor Baldwin, in his admirable treatment of the Genius as an inventor, points out that the new

thought leads to "a precipitation about a new nucleus" requiring new social adjustments.

The proper view as to the relation between the individual socius and the general socius is that they are complementary, each living for the other as well as for itself. This is the view which would seem to be required by Professor Baldwin's conclusion after drawing a parallel between the three stages he describes in the child's bashful period and the early ages of the race. The third stage is reflective, which is simply the way in which the child gets a notion of himself; and it marks the development of his personality, "wherein he has to give, by the very movement of his own growth, due value to the two terms which lead him on,—the ego and the alter." Reflexion, by which is meant turning round and examining something in consciousness, thus distinguishing the not-self from the self, is said by the author to be born "of the need of getting a sort of accommodation which will reconcile the personally aggressive or instinctive with the personally imitative or spontaneous," and the race proceeds in a similar way. It had to reconcile the instinctive tendencies derived from animal ancestry with the co-operative tendencies which social life required, and thus "the race became reflective, intelligent, and so started on a career of social development in which the two fundamental influences were to work together,—the private selfish interest and the public social interest." Professor Baldwin supposes that the social tide set in when man discovered that he could exist without killing and being killed and with the invention of the arts of tilling the soil and living, partly at least, on vegetable food. But it may be doubted whether anthropological inquiry justifies this opinion. It is found on the one hand, that a form of society exists among the lowest savages of the present day some of whom, such as the aborigines of Australia, do not till the soil; and, on the other hand, that tribes who do practise this art are almost constantly at war with one or other neighboring tribe. The islanders of the Pacific furnish examples of this case, as did at one time the native tribes of North America. Moreover, the peculiar social conditions which would seem to have subsisted almost universally with primitive man, precluded such a conflict between private selfish interest and public social interest such as Professor Baldwin supposes to have existed, at least to the extent which history would require. The real distinction was between the gens and the tribe, which represented the external interests of the community as the gens represented its internal interests. These are so well looked after that internal dissensions are far from being common. Selfishness in dealing with neighbors, however, was almost universal long after the agricultural and pastoral stages had become firmly established. At the same time there was probably an internal struggle going on between the gentile institution and the individuals who administered the affairs of the tribe, which resulted in most cases in the substitution of father right for mother right and the consolidation of all interests as a tribal organisation, with father right instead of mother right as the recognised mode of descent.

These facts are mentioned to show that it is not safe to theorise too far unless the actual facts as ascertained by anthropological research are fully considered.

Book II. of Professor Baldwin's work is divided into three parts, which treat of the Social Forces, Social Organisation—which is regarded as being due to a continuation of the two-fold exercise of the imitative function on which the growth of the individual's "self-thought" is dependent—and Social Progress. As to this we can say only that it is declared to be "necessarily in the direction of the realisation of ethical standards and rules of conduct." This work proper, after a chapter dealing with rules of conduct, concludes with a General Retrospect of the relations between the society and the individual. In a series of Appendices, the views of Professor Royce and other writers on kindred topics are considered in some detail, adding much to the value of a very important and highly suggestive work, on the completion of which Professor Baldwin may be congratulated.

C. STANILAND WAKE.

OUTLINES OF SOCIOLOGY. By *Lester F. Ward*. Author of *Dynamic Sociology, The Psychic Factors of Civilisation*, etc. New York: The Macmillan Company; London: Macmillan & Co., Ltd. 1898. Pages, xii, 301.

This volume is substantially a reprint of twelve lectures given by the author at the School of Sociology of the Hartford Society for Education Extension in 1895, and printed subsequently in the *American Journal of Sociology*. It is dedicated to Dr. Albion W. Small, "the first to draw attention to the educational value of my social philosophy, the staunch defender of my method in sociology, and to whom the prior appearance of these chapters is due." This dedication at once draws attention to what are the two most important points in connexion with any philosophic system—its principles and its practical value, and these points will engage our attention. The first part of Mr. Ward's work is devoted to the consideration of Social Philosophy, and the second part to that of Social Science, although the author states in the Preface, somewhat inconsistently, that "the earlier chapters may be regarded as aiming to show what sociology is not, while the later ones have for their object to set forth in broad outlines what sociology is." The latter will undoubtedly be the more interesting to the general reader, although the earlier chapters are by no means of a purely negative character, and may be considered as introductory to the treatment of the actual subject, and essential to the educational object the author has in view.

In dealing with the positive aspect of sociology, Mr. Ward very properly treats the "social forces" as natural forces, for which he would find authority in the teaching of Lord Bacon if such were needed, and it might be supposed, from the title he has given to the second part of his work, that he regarded sociology chiefly as a matter of science. This would be a mistake, however, as *apart from its applications*, which constitute art, science is a mere "knowing" and not of much real use. Sociology is thus on its practical side the "social art," and the author, in ac-

cordance with this view, affirms that true legislation is *invention*. Actual legislation is rather prevention than invention, but it is declared to be faulty, as natural forces ought to be utilised instead of being checked and curbed. The aim of government, as "the art that results from the science of society through the legislative application of sociological principles," is the modification of the phenomena so as to serve man, which requires first the perception of the proper modes and then "the necessary adjustments to secure the useful end." The difficulty with this view is, that it regards society as a kind of Garden of Eden where the plants require only to be cultivated to bring forth good fruit, although otherwise they would run wild. It does not allow for the fact that there are weeds which require preventive treatment, the correspondents to which in human life are the hereditary criminals, those who have a tendency to do evil, not only through acquired habit, but also by defective structural organisation. Moreover, although such men and women may be regarded as survivals of, or rather from, an earlier stage of human progress, that of almost pure savagery, yet it cannot be denied that the average man only too often shows much the same spirit in his dealings with his fellows. Greed of some sort is the source of most of our social evils and a great proportion of legislation and judicial administration is directed towards preventing or remedying its action. Mr. Ward thinks that, notwithstanding the "inane flounderings" of the American House of Representatives, which show how little reason has to do with democratic legislation, democracy has solved the moral side of the question of government, seeing that it *wishes well* for the people. What is wanted is increased intelligence, and the author's conclusion is that "if the social consciousness can be so far quickened as to awake to the full realisation of this truth in such vivid manner as to induce general action in the direction of devising means for the universal equalisation of intelligence, all other social problems will be put in the way of gradual but certain solution." This reads as though intelligence, like wealth, was accumulated in a comparatively few hands, and that if a kind of mental irrigation could be brought about by distribution of the accumulations all social evils would be remedied. That view does not speak well for the school system which is supposed to have made the Americans the most generally intelligent of peoples, and it is hardly consistent with the fact that, notwithstanding the spread of education, the moral outlook is by no means encouraging. To say nothing of the lack of moral fibre shown by the great number of divorces which take place, the increase in crime keeps pace with that of wealth rather than that of education, and we are compelled, therefore, to believe that something more than increased intelligence is required to ensure the solution of the existing social problems.

That Mr. Ward takes the right view as to the nature of intellect when he speaks of it as the directive agent, that which guides the feelings, cannot be denied. The intellect is the telic power which has given man the control of the vegetable and animal kingdoms and finally of the physical agencies at work in nature, and it is supposed to have been developed as "an aid to the will for the better satisfac-

tion of desire." Intelligence is the process of "converting means into ends," that is for obtaining what is desired. But what is to ensure that the desire shall deserve to be thus gratified? Morality is not wholly altruistic. Moreover, intelligence and reason are not the same, although they appear to be so regarded by Mr. Ward, who errs also in his view as to the origin of intellect and therefore of reason. When considering the question whether animals can reason, he speaks of the great intelligence of certain animals as favoring an affirmative answer, and in fact he places the "intellectual" attributes in opposition to the affective faculties, giving the rational faculty to the former. But what are called the beginnings of reason in the dog, elephant, and other animals are merely evidences of a high degree of intelligence. Reason, as thus distinguished, requires for its action the use of symbols such as are embodied in human speech, or in the more refined language of mathematics. This Mr. Ward speaks of as a purely human power—although he speculates on the possibility of some animals being able to say certain words and having an articulate language—and reasoning, properly so called, must be regarded as a purely human attribute. Reason has much the same relation to intellect as self-consciousness has to consciousness. The author quotes with approval Schopenhauer's statement that animals have consciousness but live without *Besonnenheit*, which he says "seems to touch the kernel of the problem." It is true that the German philosopher speaks, in the language of his time, of self-consciousness as an intellectual process, but it is evident that he regarded it as requiring thought, and this is not possible without the use of the symbols which are usually referred to as the instruments of reasoning and which are essential to it. The distinction between intellect and reason is really made by the author himself when he speaks of the "higher powers of introspection, speculation, reflexion, abstraction, and generalisation which characterise the developed mind of man." The undeveloped mind of man possesses these powers to some extent, but they are wanting to the animal mind, although it may exhibit great intellectual activity, even in the choice of means to ends. The practical application of the matter is that the solution of the social problems which, as we have seen, Mr. Ward believes will be attained through the "equalisation of intelligence," must be sought for in the rationalising of intelligence, that is, not merely its wider diffusion, but the clarification, the illumination, of the intellect, so that it may become conscious of the higher aims of human life and make choice of the best means of realising them. The result will be "the general differentiation of the faculties and refinement of the mental and moral organisation of the race," which the author speaks of as accompanying the development of self-consciousness, and it is merely a continuance of the process which Schopenhauer, in a passage quoted in the work under review, declares to originate the philosopher, the artist, and the poet, who are led to the contemplation of the world by the clearness with which they become conscious of it through the illuminating influence of *Besonnenheit*.

Much might be said with reference to Mr. Ward's opinion as to the action of

natural selection and the effect produced over organic existences by intellect in removing competition. We prefer to make a few remarks in relation to his view as to the origin of the intellect. He accepts, with reserve, Schopenhauer's statement that the intellect is an accident, and yet "it had a natural origin and was brought forth as a means of advancing nature's ends"; although it finally took upon itself to counteract the law of nature, by opposing the competitive system, and replacing it by the law of reason. Here is a confounding of reason with intellect, which in its choice of means and motives is strictly competitive, and thus it is the former attribute which is supposed to be accidental. The fortuitous origin of reason is consistent with Mr. Ward's earlier declaration that "while there is a cause for all things there is no intelligent reason why anything should be as it is." The initiative which led to "the plan of structure of organic forms" is said to be fortuitous. But how can a *plan* be regarded as in any sense fortuitous, and the very fact insisted on by the author, as being in favor of the meliorism which he rightly considers to form the true state rather than either optimism or pessimism, that all nature is a domain "of rigid law, of absolute impartiality," proves that his notion of fortuity is erroneous. Nature is organised throughout, and her structural arrangements are the necessary results of the operation of the principles which have governed the whole course of evolution from its very beginning.

The defects here pointed out do not, curiously enough, affect Mr. Ward's general position, which is that the amelioration of the social condition of humanity must be sought for in the exercise of man's highest mental attributes. Man has been able, through the enlightening influence of reason, to subjugate much of external nature to his purposes and thus to change the character of his environment, and now he has to do the same for his own nature, which requires effective control and guidance. The individual and society act and react on each other, and the author is right in making psychology the basis of sociology and in seeing its principles operative in the process of social evolution. While not prepared to endorse all Mr. Ward's statements, we think that his views in relation to that process and the purposes of sociology are, subject to the remarks, already made, incontrovertible, and in our estimation, therefore, his work deserves attentive study.

C. Staniland Wake.

Empirische Psychologie nach naturwissenschaftlicher Methode. Von *Moritz Wilhelm Drobisch*. Hamburg and Leipsic: Leopold Voss. 1898. Pages xvi, 355. Price, 6 M.

The *Empirische Psychologie* is not a new book, but the reprint of a work which appeared in 1842. The publisher informs the reader that the new edition has been published on the basis of an agreement with the heirs, and that the late Professor Drobisch who would not permit an unrevised edition to appear during his life-time had expressly given his consent to a posthumous reprint. The reader, accordingly, must bear in mind that the book is an historical document, and not a psychology,

which has been worked out in details and is thoroughly up to date. This granted, the book is of sufficient importance and interest to warrant its being made again accessible to students of psychology, after a lapse of forty years.

The main fault of the present edition (aside from the usual shortcomings of European books, i. e., absence of an Index) is the omission of an introduction by a competent man. It is true that psychologists are supposed to know who Drobisch is, and professors of psychology can tell us all about him, but there are also students and beginners to whom the book might be of use, and they cannot be expected to be fully informed on the history of German psychology. Reference books on the subject are still rare; for instance, Dr. Max Dessoir's *History of Modern Psychology in Germany* does not as yet give any information concerning Drobisch, because its first volume only has appeared, covering mainly the eighteenth century; and the Index of the *Encyclopædia Britannica* does not contain the name of Drobisch.

Drobisch, nevertheless, plays an important part in the development of psychology as a science; he is not the inaugurator and founder of the new method, but its strongest and most competent advocate. The founder of modern psychology is Herbart, for he pronounced for the first time, clearly and in an outspoken opposition to his predecessors, the fundamental truth that consciousness is an activity, *eine Thätigkeit*, which overthrows at once the proud system of the soul as an entity endowed with faculties. Herbart's psychology, it is true, is not an absolutely new beginning; he took up the thread of investigation where Kant had left it. Kant did not write a psychology, but his *Critique of Pure Reason* and his other works contain many valuable suggestions, which were worked out, in the spirit of his philosophy, by Reinhold in the latter's *Neue Theorie des Vorstellungsvermögens*, where the characteristic features of psychic life were defined as consciousness. On the basis of Reinhold's psychology Fichte built up his system of the ego, drifting slowly away from empiricism into the deep sea of metaphysicism, where he discovered the absolute ego, a natural product of (we may call it a compromise between) his one-sided idealism and universalism, recognising the reality of the not-me.

Schelling, dazzled by Fichte's conception of consciousness as an ego-unity, wrote a book on "the history of consciousness," full of ingenious speculations of that nature-philosophy which is not yet a philosophy of the natural sciences, as it is not yet free from fantastic elements. Carl Gustav Carus worked in the same line with Schelling; partaking of the latter's faults, but being more familiar with the physiological facts then known, he is more reliable in his studies, and his books on the *Symbolism of the Human Body*, his *Physic* and his *Psyche*, contain many suggestions that still deserve our attention. In Hegel the method of a one-sided anti-empirical psychology culminated. However ingenious his system is, however bold and comprehensive, it lacks the stimulus of empirical investigation. It is too dictatorial to be of any practical use, and spider-like it spins its conceptions of life

and world out of self-consciousness, which is the latest phase in the development of the absolute. Hegel's psychology is a retrospect of the evolution of man, as a conscious rational soul, rising from unconscious beginnings through contradictions to a synthesis of position and negation like the realisation of a living logical syllogism.

Against this dictatorial conception of the purely logical in the evolution of the human soul, Beneke, Fries, and Herbart raised a protest which, however, was not heeded by the enthusiastic Hegelian school, and had to fight its way until Hegelianism broke down through its own hollowness. Hegelian philosophy proved to be a plant of most luxuriant growth, full of great promise, but there were no fruits. It prospered for a season in Germany, i. e., about forty years, until 1860; then the axe was put to its roots, leaving ample time to Hegel's admirers to transplant sprigs of it in England and America, where they became acclimatised and are, within certain circles, still flourishing.

We need not here review Herbart's work and merits, for they are sufficiently known in this country. He is the founder of modern psychology, because he first of all attempted to reduce the facts of soul-life to exact scientific terms that could be expressed in mathematical laws. He started on the right path, in which Weber and Fechner followed, establishing by slow and painstaking work psychology as a natural science. There is perhaps a greater need of calling attention to the shortcomings of Herbart's psychology, to those points which by his successors had to be abandoned, but are still beclouding the minds of his disciples in educational lines.

Herbart was not only a psychologist; he was also an educator and a philosopher, and his pedagogy is born of the heart. He was an enthusiast who appreciated the importance of education. Herbart's psychology broke down the traditional superstition of the all-sufficiency of the ego with its faculties, and his application of mathematics led him to conceive the psychical organisation as a mechanism which made the situation clear and rendered it possible to formulate the problems of psychology in definite and solvable propositions. But with all this, Herbart still believes in an actual unity of consciousness, which in his psychology plays the part of the soul; but this unity has lost all the substantiality with which the old metaphysics endowed it, and has dwindled down to the shape of a mathematical point. It is difficult even now, as the case of Flügel and his controversies prove, to convince a Herbartian that the conception of a punctual soul is as metaphysical as a substance-soul. The term Herbartian is to-day applied to those disciples of Herbart who swear by the master's word and blindly accept, together with the valuable merits of his psychological and educational work, the antiquated views of his metaphysics.

Drobisch was not a psychologist by profession, but a mathematician and a philosopher; and this fitted him all the better for an appreciation of Herbart's merits as a psychologist, which he evinced in a book published in 1834 under the modest title of *Beiträge zur Orientirung über Herbart's System der Philosophie*, which

was followed in 1842 by his *Empirische Psychologie nach naturwissenschaftlicher Methode*, which is distinguished by directness and an utter absence of metaphysical methods, even to the exclusion of his master's theory of the point-soul, and his *Grundlehren der mathematischen Psychologie*, 1850.

Among other works of Drobisch we may mention his *Grundzüge der ebenen und körperlichen Trigonometrie*, 1825; *Philologie und Mathematik*, 1832; *Grundzüge der Lehre von den höheren numerischen Gleichungen*, 1834; *Neue Darstellung der Logik nach ihren einfachsten Verhältnissen*, 1836; *Grundlehren der Religionsphilosophie*, 1840.

Drobisch's psychology is remarkable for its simplicity, and it may still prove valuable for teachers in sketching out their course of lectures, filling out the various chapters with later experiments and other materials of a more recent date. For school purposes the book might be condensed, as many subjects admit of a briefer treatment; for universities it ought to be considerably enlarged; but we must repeat once more, in fairness to the author, that the book cannot serve as a text-book of to-day, but must be considered as an historical document in the evolution of psychology. P. C.

GESCHICHTE DER NEUEREN DEUTSCHEN PSYCHOLOGIE. Von *Max Dessoir*. Zweite völlig umgearbeitete Auflage. Erster Halbband. Berlin: Carl Duncker. 1897. Price, Mk. 8.

Max Dessoir of the University of Berlin is not only a practical worker in experimental psychology, but also an inquirer, a student of the past, a man of scholarly tendencies,—a combination which pre-eminently fits him for writing a *History of Modern Psychology in Germany*. He is as much at home in the subject as any one is and is personally acquainted with all the psychologists of to-day. He qualified himself in a number of historical investigations in kindred lines, all of which are distinguished by an ability for presenting the materials under discussion in a fascinating way. We have only to remind our readers of his essays on "The Psychology of Legerdemain," and "The Magic Mirror." The former appeared years ago in *The Open Court*, and the latter in *The Monist* (Vol. I., No. 1).

The present book is full of details and promises to become the standard work on the history of modern psychology in Germany. It begins with a short sketch of antique and mediæval psychology and points out the preparations for modern psychology in Paracelsus, Cardanus, Telesius, Campanella, Pomponatius, Vives, and others. A new epoch begins with Leibnitz whose name accordingly heads the first chapter after the introduction.

Dessoir points out three characteristic features in Leibnitz, an artistic disposition, a mathematical conception, and great receptivity. He makes the soul the basis of his world-conception, for, says he, any one who comprehends the soul has found the solution of the world-problem. Details concerning Leibnitz's views of

perception and apperception, his theory of monads, and the work of his disciple Tschirnhausen are treated in the second part of the first chapter.

The heir of Leibnitz is Thomasius, with a psychology strongly tinged with individualism. Thomasius is the same who is better known as the abolitionist of witch-prosecution, a man of practical insight and one in contact with real life. Wolff, however, who follows both in time, filling the third chapter, represents a systematisation of the traditional views of the schools.

Dessoir's treatment of the school of Wolff (chapter 4) and of his adversaries (chapter 5), as well as the eclectic psychologists (chapter 6), will be very welcome to the reader, since this is a period in the history of modern psychology which is least known and the sources of which are almost inaccessible in the libraries of America.

Empiricism in German psychology begins under the influence of English, and later on also of French thinkers, whose thoughts subsequently told so strongly on Kant and left their traces in all his followers. The first volume breaks off with the year 1777, the date of publication of Tetens's philosophical essays, which indicated the new spirit of the age to be realised by Kant, who at that time was preparing his essay of habilitation.

We hope to resume the discussion of Professor Dessoir's work on its completion, or on the appearance of its successive volumes. P. C.

KARL MARX AND THE CLOSE OF HIS SYSTEM. A Criticism. By *Eugen v. Böhm-Bawerk*, Austrian Minister of Finance, and Honorary Professor of Political Economy in the University of Vienna. Translated by Alice M. Macdonald. With a Preface by James Bonar, M. A., LL. D. New York: The Macmillan Co. 1898. Pages, 221. 8vo. Price, $1.60.

The economic ideas of Karl Marx have retained so great an influence among the accepters of socialism, notwithstanding the repeated attempts to prove their falsity, that it is difficult to believe them to be erroneous and the system based on them without logical justification. And yet the author of the present work would seem to have demonstrated such to be the case. Herr von Böhm-Bawerk is well known to American and English students of economic science as the author of *Geschichte und Kritik der Kapitalzinstheorieen*, and he is well qualified to criticise the third volume of Marx's *Capital*, which appeared eleven years after the author's death and more than thirty years after the publication of the first volume. Marx's third volume was looked forward to with great interest both by his adherents and his opponents, because it was expected to give his solution of a question of fundamental importance. This question had been raised by Marx himself in his first volume, but instead of answering it he promised to do so in a succeeding part of his work. It was contained in the admission that the law, that surplus value is in proportion only to the variable part of capital—the part paid in wages—"clearly contradicts all *prima facie* experience." This contradiction was declared to be

only seeming, but when the second volume of *Capital* appeared without the promised solution, the suspense became trying, although its editor, Friedrich Engels, the author being already dead, asserted positively that it was contained in Marx's manuscript. He went further and challenged the followers of Rodbertus in particular, in the interval before the appearance of the third volume, to solve from their own resources the problem "how, not only without contradicting the law of value but even by virtue of it, an equal rate of profit can and must be created." The effect of this challenge furnishes striking testimony to Marx as a thinker, as mentioned by Herr von Böhm-Bawerk, who states in his Introduction that economists of various schools attempted to penetrate the mystery in which Marx's views were shrouded. There was even a regular prize essay competition on the "average rate of profit" and its relation to the "law of value." No one succeeded in carrying off the prize, although, as pointed out by Dr. Bonar in the Preface to the present volume, Professor Lexis gave substantially the same answer as that supplied by Marx's third volume. This was published in 1894, and the problem and its solution are considered by von Böhm-Bawerk in that part of his *Criticism* which treats of "The Question of the Contradiction," which he shows to be evaded instead of the contradiction itself being got rid of. Important as is this portion of the author's work, still more so is that which has for its topic the "Error in the Marxian System," and as this is of more general interest than the former we will give consideration to it first.

As is well known, the fundamental thesis of Marx's system is that labor is the real source of value. This view was taken by the earlier economists Smith and Ricardo, though without furnishing any proof of its truth, although they found evidence of it satisfactory to their own minds in an assumed natural state, "an idyllic state of things where labor and value were one." Such an assumption agreed so well with the socialistic tendencies of Marx that he accepted it unconditionally, and it became to him a matter of earnest conviction. For his system, however, he had to supply formal proof of the truth of the statement that value is derived from labor, and this he did "in the form of an abortive dialectic, more arbitrary and untrue to facts than has probably ever before been known in the history of our science." It is impossible to follow Herr von Böhm-Bawerk through all the stages of his exposure of Marx's errors, but that which deals with the fundamental proposition of the system may be noticed in some detail. This proposition is, that the exchange value of commodities finds its origin and its measure in the quantity of labor incorporated in the commodities. Marx offers no proof of its truth drawn from experience, and he could not have done so, for "the reasoning of the third "volume proves that he was quite aware of the nature of the empirical facts, and "that they were opposed to his proposition. He knew that the prices of commodi-"ties were not in proportion to the amount of incorporated labor, but to the total "cost of production, which comprises other elements besides." Nor does Marx adopt the psychological method and endeavor to establish the truth of his proposi-

tion by reference to the motives which, on the one hand, govern people in the determination of exchange prices, and, on the other hand, guide them in their co-operation in production. He prefers the simpler plan of taking Aristotle's idea that "exchange cannot exist without equality, and equality cannot exist without commensurability," and expanding it by conceiving the exchange of two objects under the form of an equation, and inferring "that 'a common factor of the same amount' must exist in the things exchanged and thereby equated." He then proceeds to search for this common factor, and by the exclusion of all the properties possessed by the objects exchanged which cannot stand the test, he finds it to be labor and nothing but labor. This proof by "negative instances" fails, because Marx, in searching for the common factor, neglects the exchangeable goods which are not products of labor but are gifts of nature, such as coal-beds, stone-quarries, the soil, gold mines, etc. This narrowing of the sphere of exchangeable goods as a whole is ingeniously effected by the employment of the term "commodities," and he then proceeds to get rid of the competitors of labor as creators of value by affirming that a *value in use*, or a *good*, "has only a value because abstract human labor is stored up or materialised in it." The author has no difficulty in proving that the reasoning in support of this proposition is fallacious. And he shows that Marx was repeatedly forced to admit that there can be no exchange value where there is no value in use. He points out, moreover, that if the subjects of two paragraphs he quotes were transposed, as would have been the case if Marx had chanced to reverse the order of the examination which led to the exclusion of the value in use, labor would have been excluded in its stead, without the seeming justness of the reasoning being affected. Marx's next proposition is that the value of different commodities is in proportion to the working time necessary to their production, and when arguing in support of it he asserts that "skilled labor counts only as concentrated or rather multiplied unskilled labor," which he justifies by reference to experience. The author has no difficulty, however, in showing that Marx's reasoning is in a circle, although its defects are so cleverly concealed as not to be noticeable by the ordinary reader.

One of the best portions of von Böhm-Bawerk's book is that which immediately follows, in which he examines into the position accorded by Marx in his system to "competition," and his views in relation to supply and demand, which are said to cease to act when they balance each other. The falsity of this notion is exposed and Marx's statements made to exhibit so many contradictions that his critic is led to the conclusion that the system is not in touch with the facts.

But it is time to say a few words in relation to "The Question of the Contradiction" already referred to. This question the author deals with in an elaborate manner, examining in detail all the arguments direct and indirect in favor of the position that, in the last resort, the Marxian law of value determines the prices of production, showing that they are utterly inconclusive and that the contradiction remains as strong as ever. That Marx's theory of value is not consistent with ac-

tual experience is admitted by Werner Sombart, to a consideration of whose apology for the Master the last chapter of the present volume is devoted. We must leave this to the reader, who will find in it much to support the criticism of Marx's system contained in the earlier chapters. The value of the work in its English form is increased by the condensation of the argument given in Dr. Donar's Preface and by its reference to noteworthy passages. With the quotation of one of these this notice may be concluded. After remarking that socialism, neither practical nor theoretic, will certainly not be overthrown with the Marxian system, the author continues: "As there was a socialism before Marx, so there will be one after him. "That there is vital force in socialism is shown, in spite of all exaggerations, not "only by the renewed vitality which economic theory has undeniably gained by "the appearance of the theoretic socialists, but also by the celebrated 'drop of "social oil' with which the measures of practical statesmanship are nowadays "everywhere lubricated, and in many cases not to their disadvantage." In conclusion we may say that the translators of the work deserve credit for its appearance in English dress, and it will doubtless many find readers among English-speaking peoples.

C. S. WAKE.

SOME PHILOSOPHY OF THE HERMETICS. Los Angeles, Cal.: B. R. Baumgardt & Co. 1898. Pages, ii+109. Price, $1.25.

SOME MORE PHILOSOPHY OF THE HERMETICS. Los Angeles, Cal.: B. R. Baumgardt & Co.; New York: Alliance Pub. Co. 1898. Pages, viii+232. Price, $1.50.

These two books contain rhapsodies on Hermetics, Philosophy, Faith, Imagination, the Devil, etc. The first book begins as follows:

"Nature has a way of concealing and revealing. She tells half her story out "in the sunshine in a loud voice, and the other half in whispers underground.

"She is coy like a coquette, and stern like a judge. She excites curiosity in "the student, and dread in the debauchee.

"She holds the man of science to her breast, but is dumb to the lover of "pleasure. She scorns the victim of priestcraft and repudiates the supernatural."

The last chapter which is on magic closes as follows:

"Would you be a magician, stir up the smoldering coals at your own fireside. "Begin to burn. Feel your blood hot in your veins. Warm yourself with memo-"ries of sun-tinted dreams. *Pray—pray—pray* at the shrine of the Sphinx."

The Hermeticism of the Middle Ages is repudiated. The author says:

"The absurdity of the Hermetic of the Middle Centuries would be laughable "were it not so pathetic. When he speaks of sulphur and mercury and so forth "and so on, his pages in print appear more like the ravings of a lunatic than any "thing else. To pass as a harmless crank was his only hope of living at all, once "upon a time. 'But to-day,' you say, 'there is no danger, why keep up this ab-"surd symbolism?' We reply, partly from the association of ideas, which, in a

"way, has become pleasant to us, for the past is at our backs and its memories are "sacred, and partly from the first reason given, which is, that man is by constitu- "tion hermetic and tells only so much of his story as the world is willing to receive. "A certain symbolism, in guise of parable and illustration, was used by the great Masters of philosophy and religion—Jesus and Gautama, to say nothing of the "Masters in Egypt—ere written history began. The symbol condenses, and car- "ries a deal of meaning along with it that pages can not express."

From the prospectus of the book we learn that Professor Jordan, President of Stanford University (who presumably is a personal friend of the author) speaks of the book as follows:

"It is full of sound wisdom thrown into a striking literary form which seems "to hide the commonness of its 'common sense.' It is a book to be encouraged, "and it ought to be a practical help to many in the conduct of life."

President Jordan is commonly regarded as a clear thinker, and his praise of the Hermetic philosophy may be a surprise to many; for these books can be appre- ciated by mystics only. P. C.

BOUDDHISME: ÉTUDES ET MATÉRIAUX. Adikarmapradîpa Bodhicaryâvatâratîka. Par *Louis de la Vallée Poussin*. London: Luzac & Co. 1898. Pages, 427.

This book in large quarto of some four hundred pages contains the text of the Adikarmapradîpa Bodhicaryâvatâraṭîka, a book of Tantrik Buddhism, which teaches the vanity of both world and thought, the uselessness of ritual, and seeks salvation in the triple abhyâsa, a kind of yoga, by which the guru (or disciple) realises his identity with the Buddha. Professor Poussin follows MS. 69 of the Royal Asiatic Society, and accompanies his edition with brief variants, suggestions, and refer- ences. The most interesting part of the book for the reader who is not a specialist, will be the introduction, pp. 1–161, in which the author presents a new view of Buddhism in opposition to the traditional view represented by Oldenberg and his colleagues, who as a matter of principle limit their investigations to the three baskets of the southern schools, commonly called Hînâyana, or small vessel of salvation. Professor Poussin claims, and he defends his position with good arguments, that the unity of the southern Buddhism is a fiction, and that the broader school of northern Buddhism, commonly called the Mahâyana or large vessel of salvation, has the same title to an historical consideration as the narrow doctrines of the southern school. Gautama was not the founder of asceticism, but on the contrary an opponent of its narrow system of salvation. He did not limit his instruction to the order of monks, but accepted willingly and gladly great numbers of lay disciples. We cannot doubt that there were great varieties of Buddhist congregations all of whom acknowledged the authority of the Buddha as their guide and master in some form or another, and the Hînâyana was one of them, but by no means the only one, and probably not a very large fraction of the whole Buddhist community in India.

But this Hinâyana, which consisted exclusively of monks, was severer in discipline and more rigid in doctrine than the other schools and assumed at the same time an authority which mislead historians and Pâli scholars to regard it as the sole, original, and unadulterated Buddhism. Their conception of the situation, however, leaves gaps in the history of Buddhism which throws our comprehension of the development of its churches, especially in Nepal and Burmah, but in other countries also, into confusion.

Professor Poussin's work is not yet complete. He gathers materials of which the present edition of ancient MSS. is a beginning only. We hope to see more from his pen and do not doubt that his labors will bring valuable materials to the notice of scholars and become a safe foundation for a critical and truly scientific history of Buddhism, which as yet does not exist. P. C.

LA MATHÉMATIQUE. PHILOSOPHIE—ENSEIGNEMENT. By *C. A. Laisant.* Paris: Georges Carré and C. Naud. 1898. Pages, 286.

We have in this work a new contribution to the philosophy of mathematics,—a field which has been much worked, but in which considerable labor yet remains to be done. M. Laisant has given us a clear and simple book, which makes no pretension to erudition or to metaphysical cloudiness; he has addressed his utterances not to finished students of the higher branches of mathematics nor to persons who have no knowledge whatever of this science, but to those who have already studied the subject, who are teaching and applying it, but have not had the opportunity of making it a specialty. Mathematics has grown to such proportions in the nineteenth century, and research in each branch has been pushed so far, that it is impossible for any single individual to command it in its full extent; much less, then, is it to be supposed that instructors and students who have not made this science their life-study can be in the possession of secure and comfortable ideas regarding its actual status and its possibilities. It is to meet the wants of this class that the book has been written.

The relations between philosophy and mathematics are first discussed, and the opinion of Leibnitz quoted that "one cannot go to the bottom of philosophy without mathematics, that one cannot go to the bottom of mathematics without philosophy, and that without both one cannot go to the bottom of anything." The work is divided into three parts, viz., (1) the philosophy of pure mathematics, (2) the philosophy of applied mathematics, and (3) instruction in mathematics. The first part deals with the classification of the mathematical sciences, arithmetic, arithmology, algebra, the infinitesimal calculus, theory of functions, geometry and analytical geometry, and pure mathematics; the remaining parts are correspondingly divided. The author believes in the experiential origin of mathematics, contending that the only difference between this science and the other sciences is that it borrows a minimum of notions from experience, the rest being a purely logical development. There are interesting remarks upon the object and utility of the mathemat-

ical sciences; the discussion regarding the classification of the various subdivisions of mathematics involves many instructive points, and constitutes a broad, general survey of the present state of mathematical research.

The chapter on instruction is also interesting and suggestive. As to the amount of primary instruction which should fall to the share of pupils, the author believes that the first elements of the sciences of number and of space should be inculcated, but not in a mechanical manner; the course should be an elastic one, the general outlines of which only should be determined. The theoretical instruction, further, should be supplemented by applications to real facts,—which applications should be few and happily chosen, rather than many and indiscriminate. M. Laisant contends that if the elements of arithmetic, algebra, and geometry were disengaged from the mass of parasitic propositions which envelop them, if they were reduced in quantity so as to embrace only the leading ideas and the essential methods, enough time would be gained and sufficiently clear ideas would be imparted to enable instructors to include in all courses leading up to University examinations the elements of analytical geometry and the infinitesimal calculus. This amount of instruction, which is thoroughly reconcilable with the requirements of a course of general culture, and which does not transcend the ordinary intelligence, is what should be expected of every educated person.

While the author makes no pretension to profundity, and does not expect that his work will throw great light on the metaphysical foundations of mathematics, his ideas are impregnated with common sense and are clearly stated; instructors and students will both profit greatly by a perusal of the book. There is a bibliography and an index.

We cannot, in conclusion, refrain from complimenting the publishers on the elegant taste they have displayed in the letter-press and especially in the binding of the volume. *μ.*

DAS PRINCIP DER ERHALTUNG DER ENERGIE UND SEINE ANWENDUNG IN DER NATURLEHRE. Ein Hilfsbuch für den höheren Unterricht. By *Hans Januschke*. Leipsic: B. G. Teubner. 1897. Pages, x, 456. Price, bound, 12 M.

The present work is another evidence of that reform in the methods of instruction which has replaced the old dogmatic method by a mode of exposition predominantly psychological and historical in character; it has also been noticeably influenced by the philosophical movement in science which found its expression in the works of Helmholtz, Kirchhoff, Dühring, Mach, Hertz, Boltzmann, Ostwald, and others. The aim of the author has been to demonstrate, by practical exposition, the validity of the principle of the conservation of energy in every branch of physics, to lay in this way a unitary foundation for the whole subject, and so to satisfy the educational requirements of economy and consistency. He has treated his material according to the form which it has historically taken, beginning with mechanics and hydrostatics, and proceeding through heat to electricity, magnetism

and light. There is a brief introduction to the work on the subject-matter and methods of physics, and also a historical sketch of the origin and development of the principle of the conservation of energy,—sections which convey much interesting information, but contain nothing very original. The work is intended as a companion book to advanced courses in physics, and the development of the several subjects is largely couched in the language of the Calculus,—which is, however, of a very simple character. An excellent feature, which is entirely new in German books of this character, is the appending to each section of a number of examples for practice. Also, the existence of an index and the fact that the book is bound, are pleasing indications of a revolution in German book-making. The letter press in general is good, and upon the whole the author and publisher have produced a work of value.

L'ANNÉE PSYCHOLOGIQUE. Publiée par *Alfred Binet*. Avec la collaboration de *H. Beaunis*, *Th. Ribot*, MM. Bourdon, Courtier, Farrand, Flournoy, Philippe, Vaschide, and Warren. Quatrième année. Paris: Schleicher Frères. 1898. Pages, 839. Price, 15 francs.

The *Année psychologique* is now in its fourth year, and the indefatigable industry of its editor and of its collaborators has made it one of the most useful of the year-books of science. It is divided into three parts, the first of which consists of original memoirs; the second of critical reviews, digests and synopses of the most important works and articles published on psychology and kindred subjects in the year 1897; third, of a bibliographical list and description of *all* the works published on the subject during the same year. This last list has been compiled by two Americans, Drs. Warren and Farrand, and is the same as that of the *Psychological Index*. We find in this list that the number of works published on psychology and kindred subjects for the year 1897 was 2465. Of course, this includes such subjects as brain-physiology and much that properly belongs to medicine; for example, looking over the books which have been reviewed, we find the following subjects: psychogeny, comparative and individual psychology, anatomy and physiology of the nervous system, sensation, consciousness, attention and intellect, emotions, movement and volition, abnormal and pathological psychology. The original memoirs are mostly contributions of the editor, who is director of the Laboratory of Physiological Psychology at the Sorbonne, in collaboration with M. Vaschide; the two remaining contributors of original memoirs are MM. Bourdon and Leclère. The memoirs of MM. Binet and Vaschide deal principally with the psychology of school children, and record the results of experiments testing muscular force, respiration, circulation, etc., etc.

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THE MONIST

ORMAZD, OR THE ANCIENT PERSIAN IDEA OF GOD.

Ahura Mazda, thou Spirit Most Holy,
Creator of the Material world,
Thou Righteous One!

THESE are the words in which Zoroaster, the Prophet of ancient Iran, was wont to pray to the Holy One of Persia, to the Lord God of Iran, as we read in the Avesta or ancient Sacred Books of the Parsis. It was this figure of Ahura Mazda, or Ormazd, that Zoroaster proclaimed to stand at the head of the host of heaven as supreme ruler over the great kingdom of good, of truth, of light, and as regent and sovereign above all peers. "A great god is Aura-mazda, the greatest of the gods" says King Darius also in the grand royal inscriptions on the rock at Behistan when he invokes blessings upon his people and gives thanks to Ormazd for all his mercies and kindnesses, in tones that resemble the fervor and dignity of the Psalmist chanting "the Lord is a great God, and a great king above all gods." Everywhere in the Zoroastrian scriptures the supremacy of Ahura Mazda is recognised and acknowledged; everywhere in his names, titles, attributes and functions, there is evidence of the exalted idea which the Persians held of the majesty of this supermundane figure, of the purity of this transcendental divine being whom the Zoroastrian religion set up to be worshipped as god. So characteristic is this supreme

deity, that the religion itself is often called "Mazdaism" from Mazda's own name.[1]

The very lines of address to the deity, given above in the formulaic stanza that serves as text to open the discussion, show a certain ideality of thought that characterised the ancient Persian temperament. The Greeks, with their anthropomorphic notion of the pantheon of heaven, seem to have been struck by the spirituality and the immaterial nature of the Iranian conception of the godhead. Herodotus tells us that the Persians charge with folly those who erect statues or temples of the gods, "because they do not think the gods have human forms, as the Greeks do"; while ac-

Fig. 1. AHURA MAZDA.
(Conventional reproduction of the figure on the great rock inscription of Darius at Behistan.)

cording to Deinon, "they regard fire and water as the only images of the gods."[2] Plutarch best expresses the Zoroastrian idea of divinity when he says, in describing the nature of Ormazd, "among objects of sense he most of all resembles the light." Porphyrius adds of Ormazd, "his body is most nearly to be likened unto Light, his soul unto Truth."[3] From the Pahlavi books, or patristic literature of Sassanian times, which stand in the same relation to the

[1] For a brief and comprehensive sketch of the faith I would refer to a shor article by the Editor, Dr. Carus, in *The Open Court*, March, 1897.

[2] Herod. I. 131 (and after him Strabo, *Geogr. Lib.* xv), Deinon, *Fragm.* (cited in Clemens Alex.).

[3] Plutarch, *de Is. et Osir.* c. 46; Porphyrius, *Vita Pythagorae*, 41.

Fig. 2. Bas-Relief of Persepolis.
ier Flandin et Coste, *Perse Ancienne*, pl. 156. Reproduced from Lenormant, V , p. 485.)

Avesta as the Church Fathers stand to the Bible, we learn that it is in the majesty of the sacred flame that Aŭharmazd reveals himself to the transported seers of Iran, just as Jehovah manifested himself in a great light to the prophets of old.[1] It must not be supposed, however, that the figure of the great Iranian god is absolutely free from all anthropomorphic traits. Such suggestions of anthropomorphism as are noticeable, and they are slight, will be discussed hereafter. But first we must look at the general attributes and functions of the Persian divinity.

Ahura Mazda. The name Ahura Mazda which always stands first in the formulaic address by the Prophet when he begins to commune with his god, is in itself an ideal title. It means the "Lord-Wisdom" (*Ahura-Mazda*). This "Sovereign Knowledge" universally appears as the chief characteristic of the Iranian deity. In a chapter of the Avestan ritual devoted to Ormazd and anticipating the thousand names of Allah, Ahura Mazda himself says: "my sixth name is Intelligence, my seventh name is the Intelligent. My eighth name is Knowledge, my ninth name is Endowed with Knowledge. I am the Sage by name; and I am by name the Sagest."[2] Everywhere in the Avesta, moreover, Ahura Mazda is represented as creating with "Intelligence"; whereas his antagonist Anra Mainyu creates with Ignorance. Ormazd is prescient, rich in wisdom, and omniscient; his opponent Ahriman is ignorant, lacking in knowledge, and endowed only with after-thought. The contrast between Ormazd and Ahriman, however, must remain to be discussed more fully upon some other occasion.

Thou Spirit Most Holy. These words of the address, "Spirit Most Holy," or "Spirit Most Beneficent," exhibit one of the most

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[1] Artā-Virāf, **101**. 10–12; Zartusht Nāmah, p. 492, l. 35 (in Wilson's *Parsi Religion*).

[2] Avestan Yasht **1**. 7, 15. The Avesta is easily accessible in translation by Darmesteter and Mills in the *Sacred Books of the East*, ed. F. Max Müller, vols. iv, xxiii, xxxi; or in the later French version by Darmesteter, *Le Zend Avesta* (Musée Guimet Series) 3. vols., Paris, 1892–1893; or again in German by F. Spiegel, and in French by C. de Harlez. The Pahlavi texts may be had in the translations by E. W. West, *Sacred Books of the East*, Vols, v, xviii, xxiv, xxxvii, xlvii.

characteristic attributes of Ahura Mazda as *Spenta Mainyu* or *Mainyu Spénishta*, the good spirit, opposed to the evil spirit *Anra Mainyu*.[1] And now we must philosophise for a moment, as we have before us a tenet which is as metaphysical as the Trinitarian doctrine in Christian theology.

The attribute Spenta Mainyu, as part of Ahura Mazda's personality, is in some instances, especially in the Gāthās or Zoroastrian Psalms, conceived of as an emanation from Ahura himself.[2] In such cases it comes to be regarded almost as a personal being that plays the rôle of intermediary, especially in creative activity, somewhat like Vohu Manah, or the archangel of Good Thought. This relation between Ahura Mazda and Spenta Mainyu in the Psalms of Zoroaster much resembles that of the Holy Ghost to the Father in the New Testament, because Spenta Mainyu, or the "Holy Spirit," is of the same substance with Ahura Mazda[3]; and, as we might naturally suppose, so subtle a distinction naturally gave rise to different views of interpretation in Zoroastrianism itself and to the varying dogmas of sects.

It was this sharp antithesis of Spenta Mainyu to Anra Mainyu which is present in the Zoroastrian Gāthās as the Parsis emphasise, that led still farther in later times to the separation of attribute and essence from the person. The sacred Pahlavi literature of the Sassanian period recognises the personification of the essence and spirit (the Pahlavi *Sp·nāk Maīnōg*) conceived of as separate and apart from the Divine Being.[4] In fact there is just as much

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[1] Some of the most specific passages in the Avesta are: Ys. **30**. 5; Ys. **44**. 7; Ys. **45**. 2; Ys. **43**. 5; Ys. **57**. 17; Yt. **13**. 13; Yt. **15**. 3, 43, 44; Yt. **19**. 44. 46; Vd. **1**. 1 seq.; Ys. **1**. 1; Pahlavi Būndahishn **1**. 3–27. See also J. Darmesteter, *Ormazd et Ahriman*, p. 89–94, Paris, 1877.

[2] E. g.; Ys. **43**. 2, 6; **45**. 6; **47**. 1, 5; **51**. 7. See also Firoz Jamaspji's note in Casartelli, *Mazdayasnian Religion under the Sassanids*, Bombay, 1889, p. 17.

[3] The late lamented Darmesteter's views on the influence of the Logos doctrine upon the Avesta cannot be said to have met with any general favor among specialists. On somewhat similar lines, but earlier, Casartelli, compare *Mazdayasnian Religion*, tr. by Firoz Jamaspji, Bombay, 1889, p. 42 seq.

[4] Consult Casartelli, *Mazdayasnian Religion*, trans. by Firoz Jamaspji, pp. 17, 19, 57, with footnotes. See further West in *S. B. E.*, V., 112 note, 128 note 8.

evidence in Zoroastrianism of divergence in the lines of development on this point, with doctrinal differences and dogmatic variations, as there is a deviation in Christianity between Unitarianism and Trinitarianism. The modern Parsis have gone so far as to regard Ahura Mazda as comprising within himself both Spenta Mainyu and Anra Mainyu, as two spirits of opposite character, if not opposing nature, two principles, the good and the evil, two poles of the magnet, positive and negative.[1] This view is evidently recognised, together with other views, by Shahrastānī (A. D. 1086–1153), in his account of the sects and philosophical schools, when he states that the sect of the Gayomarthians maintain that the evil spirit Ahriman sprang from the good principle.[2] Haug most clearly presented the Parsi attitude when he sought to draw a distinction between Zoroaster's theology as monotheism and his speculative philosophy as dualism.[3] As a whole, however, the modern Parsi view, although it must command the most serious attention and investigation, seems to the present writer rather to be a later development, along more sharply defined lines, of what is only latent in the early times of the Gāthās. In other words, it appears to be a conception which has its origin perhaps in the growth of monotheistic tendencies and it appears to be due rather to the influences of certain older sects, than it seems to represent the original teaching of Zoroaster himself. Still, such a statement, although it represents a common view of the question, must be taken with reserve, for the Parsis strenuously maintain that foreigners misunderstand the standpoint of the Gāthās in this matter. Nevertheless, the direct opposition between Ormazd (Ὡρομάσδης) and Ahriman (Ἀρειμάνιος) as the good and the evil genius (δαίμων), or as two antagonistic principles

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[1] See the views of the Parsi authorities Firoz Jamaspji in Casartelli, *Mazdayasnian Religion*, p. 19 note; J. J. Modi, "The Religious System of the Parsees" in *The World's Parliament of Religions*, II., 900-902; N. F. Bilimoria, "Mazdaism" in *The Open Court*, XI., 377, June, 1897.

[2] See Haarbrücker's translation, I., 275 seq.; and compare Spiegel, *Erān. Alterthumskunde*, II., 187; Casartelli, *op. cit.*, 52 seq.; Gottheil, *References to Zoroaster*, p. 46 (Classical Studies in Honour of Henry Drisler, New York, 1894).

[3] Haug, *Essays on the Parsis*, 3d ed., pp. 300–304.

(ἀρχαί), is as old as Aristotle, if we may accept the authority of Diogenes Laertius.[1]

The attribute *Spenta Mainyu* has been translated above by "Holy Spirit." The English word *holy* (A. S. *hāl*) with all its comprehensive idea of absolute excellence, fulness, completion, finish, perfection, is not far remote in its original sense (cf. *whole*) from the Avestan *spenta*. The latter has as many cognates and derivatives in the Avesta as the English *holy* has in the Bible (cf. also Germ. *heil* and its kin), and like "holy" the word "spenta" is a

Fig. 3. Sculptures on the Tomb of Darius.
(Flandin et Coste, *Perse Ancienne*, at Persepolis, pl. 164. Lenormant, V., p. 23.)

great cardinal term in Zoroastrian theology. The true and fundamental idea of the Iranian word and its cognates is that of "growth, increase, furtherance, progress, power, beneficence, perfection," which are synonyms with the Zoroastrian conception of holiness.[2]

As for *mainyu*, "spirit," it has been sufficiently shown above how ideal in its spirituality the Iranian conception of the godhead

[1] Diogenes Laertius, *de Vit. Philos.*, Procem. 8.

[2] The best discussion of the term is to be found in Darmesteter, *Ormazd et Ahriman*, p. 39, 89–92. For the development of meaning we may compare the etymological force of "august" (Lat., *augeo*).

really is. Attention has already been called to what the Greeks remarked on this subject. Herodotus emphasises that the Persians have no images of the gods because they do not believe, as the Greeks do, that the gods have "human forms." And when the Avesta speaks of Ahura Mazda as having a "body" (*kehrp*), we must remember that it is rather in the shape of the holy flame that he manifests his presence to mankind, or in the form of light, because "he wears the heaven as a robe."[1]

Fig. 4. Sassanian Bas-Relief. Ormazd Presents the Crown to Ardashir.
(From Curzon, *Persia*, II. p. 125.)

Nor is the sculptured rock at Behistan or the later Sassanian bas-reliefs a violation of the conception. King Darius in the great inscription evidently caused a representation of Aüra-mazda to be carved above his own portrait. This figure floats in a winged circle over the head of the king and presents to him a ring or symbol of sovereignty. See Fig. 3.

It has been supposed that this conventional figure represents

[1] Cf. Avesta, Ys. 1. 1; Ys. 30. 5; Yt. 13. 3; and especially Ys. 36. 6.

rather the *fravashi* or idealised spirit of the king; but there can hardly remain any doubt that it represents Ormazd when we compare it with a passage in the Avesta (Vend. 2) and with similar representations of the godhead in Sassanian bas-reliefs, where a like figure is pictured at Naksh-i-Rūstam as presenting to the ruling monarch the emblem of sovereignty, and the name Ormazd is actually inscribed on the stone.[1] See Figs. 4, 8.

This conventional representation of Ormazd is not Iranian in origin nor by nature; it is borrowed from Assyrian or Babylonian art, as is generally acknowledged by scholars, and as is illustrated by the reproductions from an Assyrian cylinder and cameo, with a winged symbol of the divinity, on the next page. So special a representation of the deity on the Achæmenian trilingual inscriptions may have been designed by Darius for particular reasons. It is manifest throughout that he wishes to emphasise his divine right to the throne, and this plastic delineation of the divinity himself offering the sovereignty to the king, might well be calculated to appeal to the non-Persian conquered nations who were perhaps more anthropomorphic in their ideas. The later Sassanian bas-relief representation would simply be borrowed from the older Achæmenian sculptures or with the same intent. (See Fig. 8.) We may understand the situation better if we recall that mediæval Christian art did not shrink from representing the Deity as a bearded patriarch in flowing robes.

With regard, furthermore, to the theme under discussion, of Ahura Mazda as a spirit (*mainyu*), we may add that the purity and ideality of the conception is in no degree interfered with by the allusions to him in the Zoroastrian Psalms as "the father of Vohu Manah (archangel of Good Thought)," or again as "the father of Asha (Righteousness).[2] He is always represented as the creator of

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[1] See Edward Thomas, "Sassanian Inscriptions" in *Journal of the Royal Asiatic Society*, New Series, Vol. III., p. 269 and p. 267 note 3, London, 1868. K. D. Kiash, *Ancient Persian Sculptures*, p. 121; G. Rawlinson, *The Seventh Oriental Monarchy*, p. 606; Curzon, *Persia*, II., 125 (from which latter the above cut is reproduced).

[2] Ys. 31. 8; Ys. 45. 4; Ys. 44. 3; Ys. 47. 3.

the Archangels, or *Amesha Spentas* (Immortal Holy Ones). In the Yashts, or Avestan hymns of praise, he has Ārmaiti (Holy Harmony, goddess of the Earth) as daughter. The angel Ashi Vanuhi (Good Piety, and its resulting blessings) is their child; and this divine creature is a sister of the divinities Sraosha, Rashnu, and Mithra (Obedience, Justice, Truth), who rule as judges of the fate of the soul after death. The Fire (Ātar) is the son of Ahura Mazda; the

Fig. 5. Assyrian Cylinder.
(British Museum. Lenormant, V., p. 234.)

waters are his spouses; and the Archangels or Amesha Spentas, as already noted, are his creation and his dependents.[1] Whatever may be the origin of these several abstractions, of these metaphorical and allegorical expressions, we are not to interpret them any differently from the manner in which we speak in Christianity of the

Fig. 6. An Assyrian Cameo.[2]

"fatherhood of God," the "fellowship of the Holy Spirit," or the "bride of Christ."

Ahura Mazda as Creator.—With the phrase "Creator of the material world," in the formula of address above, we come to one of the most characteristic of all Ahura Mazda's attributes,—the

[1] Yt. 17. 16; Ys. 0. 2, etc.; Ys. 38. 1; Yt. 13. 83.

[2] In the Louvre in the Cabinet des Médailles. See Lenormant, V., p. 248. Compare the very similar Artaxerxes seal of Dieulafoy in *Harper's Monthly Magazine*, LXXV. p. 3.

divine attribute of creative power. There is a noble "Psalm" (Gāthā) in which Zoroaster inquires into the nature and origin of creation, the maker of the sun, moon, and stars; of the earth and the sky; of the trees, winds, and mists; of the light and of darkness, morning and evening, wakefulness and slumber; and of the governing power that rules and directs the world; and, finally, in the confidence of his belief he rises to a grand climax as he bursts out into an exclamation calling upon "Thee, O, Mazda, the Creator of all through thy Holy Spirit."[1] In the Avestan prose "Seven Chapters," which can be but little later than the metrical Gāthās, Ahura Mazda is the creator of "all good things," including especially the animals, plants, the light and the earth.[2] In the opening

Fig. 7. Assyrian Cylinder.
(Layard, *Culte de Mitra*, pl. xxx., No. 7. Lenormant, V., p. 248.

paragraphs, moreover, of the Yasna, or celebration of worship, Ahura Mazda is invoked as "the Creator, radiant and glorious, most great and good, most fair, firm and wise, he who is most beautiful in form, who is supremest in Righteousness, sage and comforting, he, finally, who has created and fashioned us, he who has nourished us, he the Spirit Most Holy."[3] The attributes "created by Ahura," "made by Mazda" (*ahura-dhāta*, *mazda-dhāta*), which are applied to holy places and sacred things, are among the noblest attributes that can be bestowed. Ormazd's creation is

[1] Ys. 44. 3–7. This passage is especially cited in connexion with the idea of Spenta Mainyu.

[2] Ys. 37. 1.

[3] Translation of Ys. 1. 1.

everywhere characterised as a creation of intelligence; and his creative "Wisdom" (*khratu*) becomes glorified as a personified abstraction, as a separate individual.[1]

The same function as creator appears in the inscriptions of the ancient Persian Achæmenian kings, Darius, Xerxes, Artaxerxes, as they ascribe to Aura-mazda their creation, preservation, and all the blessing of their sovereignty in the words: "A great god is Aüramazda, who created this earth, who created yonder heaven, who created man, and created Peace for man, who made Darius (Xerxes, Artaxerxes) king, the one king over many, the one sovereign over many."[2] Throughout the Pahlavi patristic literature we find identical or similar expressions which are wholly in harmony with what has been said, as are the Greek passages, so far as they imply allusions to the subject.[3]

Whether the creation of Ormazd was a creation *ex nihilo*, or whether it was a shaping of pre-existing matter, belongs elsewhere to discuss.[4] A new investigation also is needed of the question as to how far, in the earliest Persian religious thought, Ahura Mazda was regarded as having created darkness or evil as in the well-known Isaiah allusion: "Thus saith the Lord to his anointed, to Cyrus . . . I form the light, and create darkness; I make peace, and create evil; I the Lord do all these things."[5] This much, however, may be stated off-hand, that in almost every passage in Iranian literature there is no question as to Ormazd's being the author and source of all that is good; his creation is marred only by his adversary Ahriman as in the two familiar passages of the Vendīdād and the Būndahishn.[6]

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[1] Cf. also Darmesteter, *Ormazd et Ahriman*, p. 26–27.

[2] Ancient Persian Inscriptions Dar, Elv. 1 (=O. 1).

[3] Phl. Būnd. 1. o *datar* "creator"; and often.

[4] For some Avestan statistics on the subject see my notes in Peck's *Semitic Theory of Creation*, p. 25–26 (Chicago, 1886, Barclay, White & Co.), and also the remarks by Casartelli, *Mazdayasnian Philosophy*, p. 28. The subject needs a new investigation.

[5] The most recent remark on this much-discussed passage is by Spiegel, *Zeitschrift der deutschen Morg. Gesellschaft*, LII., 189.

[6] Vd. 1. 1–20; Bd. 1. 10–27. Translations may be found in the *Sacred Books of the East*.

Thou Righteous One. The true force of this final attribute "righteous" (*ashavan*), which sums up the formulaic address, can best be appreciated when we understand the significance of the original word *asha* "right, order, law, purity, righteousness," from which it is derived.[1] This is the same word as the Sanskrit *ṛta*, and it primitively denoted the order which pervades the world, the law in harmony with which men should live.[2] In the Avesta this concept becomes personified by Zoroaster as *Asha* "Law, Order, Righteousness," one of the seven Archangels or Immortal Holy Ones. Ahura Mazda, in the Zoroastrian Psalms, is "the father of Asha" and "the very founder of Righteousness";[3] or, in the words of the Christian writer Eusebius, who quotes from Zoroaster, Ormazd is the "father of law and of righteousness"—πατὴρ εὐνομίας καὶ δικαιοσύνης.[4] Throughout all the Pahlavi texts Aūharmazd maintains this position of righteous lord, the great upholder of that universal law and order which the world observes, the law which regulates all that is right.

Other Attributes and Functions of Ahura Mazda. From the Avesta, from the Ancient Persian Inscriptions, and from the Sassanian or Middle Persian writings, we may hastily present some of the epithets which have been gathered, and we may notice the other functions which Ormazd performs. He is not only a righteous creator but he is also the "keeper," "guardian," and "protector" of all his creatures to whom he is ever ready to lend his aid.[5] He is "watchful" and "infallible," and he is "not to be deceived" for he is "omniscient";[6] he is a giver of rewards and punishments,

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[1] The attribute *ashavan* is by no means confined to Ahura Mazda. Like the word "righteous" in the Bible, it is used of man as well as of God; and when it is applied to sacred things it means "holy, hallowed."

[2] See also Darmesteter, *Ormazd et Ahriman*, p. 7 seq., and Max Müller, *Hibbert Lectures*, 1878, pp. 249–253.

[3] Ys. **44**. 3; Ys. **31**. 7, 8.

[4] Eusebius, *Praep. Ev.*, **1**. 10.

[5] Cf. Avesta, Yt. **1**. 13; Ys. **31**. 13; Yt. **1**. 12; Ys. **1**. 1, and cf. especially Ys. **28**. 11, and elsewhere in the Avesta. For the Anc. Pers. Inscriptions see Dar. Pers. d. 16 (= H. 16) *et passim*. The Pahlavi allusions also are numerous.

[6] Yt. **1**. 13–14; Ys. **45**. 4; Yt. **1**. 7, 8, 12; Ys. **29**. 4; Vd. **19**. 20; Yt. **12**. 1.

according to Zoroaster in the Gāthās[1]; and, furthermore, the great king Darius invokes God's wrath upon his enemies as well as his blessing upon himself.[2]

In Plutarch he is "the Lord Ormazd," in Xenophon he is "Zeus the King"; in the Avestan Gāthās Zoroaster prays to see his "kingdom," or empire, established upon earth.[3] Therefore "powerful, great, good, and royal" are among the many attributes which occur in the special chapter of the Avesta devoted to Ahura Mazda and his titles.[4] He is "immutable," or unchanging, and his existence is from eternity unto eternity.[5] His throne is in the heavens, in the abode of endless light.[6] Round about him stand ministering angels and archangels. These are the Amesha Spentas

Fig. 8. ORMAZD WITH THE CIRCLE OF SOVEREIGNTY AND THE SCEPTRE OF POWER.
(From an Assyrian Bas-Relief.)

(Immortal Holy Ones) and the Yazatas (Worshipful Ones) who make up the celestial council.[7] They are ever ready to do his bid-

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[1] Ys. **43**. 4–5; cf. Ys. **47**. 4.

[2] Anc. Pers. Inscr. Bh. **4**. 73–80: Herodotus, **5**. 105.

[3] Plutarch, *Alexander*, **30**. 3, p. 257, ed. Tauchnitz, *ὁ κύριος Ὡρομάσδης*; Xen. *Cyrop.*, **3**. 3. 21, ed. Breitenbach, p. 112, *Διὶ βασιλεῖ*; cf. Avestan, ***khshathra***, "kingdom," *passim*.

[4] Yt. **1**. 7 seq.

[5] Ys. **31**. 7; Phl. Dīnkarṭ (ed. Peshotan), Vol. iii. 130–132, cf. Casartelli, *Mazdayasnian Religion*, p. 24.

[6] Ys. **28**. 5; Yt. **22**. 15–17; Vd. **19**. 30–32; Phl. Artā-Vīrāf, **10**. 4; **Mkh. 7**. 11; Plutarch, *de Is. et Os.* 47.

[7] Hence probably *mazdāonhō* as plur., Ys. **30**. 9; **31**. 4; **45**. 1; cf. Spiegel, *Comm. zum Av.*, ii. 181.

ding; and through these as his agents his beneficent works are shown or his mercy is manifested to men.[1] His sovereignty is undisputed save by the Evil Spirit; and when we find in the Avesta in one or two sporadic instances, this or that angel or minor divinity apparently exalted for the moment to be his peer,[2] we may judge that this is a mere phase of kathenotheism in the Yashts, and due either to a survival from an older pantheistic view, or to a Zoroastrian concession which may be made in recognition of some trait that belonged to an earlier stage of the faith. At all events they do not mar the picture, but serve rather to show the harmony that reigns in the heavenly hierarchy, and they detract in no wise from the true exaltation of Ormazd as "the great god, the greatest of the gods," as he is called in the Achæmenian inscriptions.

Such a Being is well "worthy of worship" as Zoroaster himself exclaims in the Gāthā-Psalms[3]; and, to quote from the Church Father, Eusebius, who, on the authority of Osthanes, claims that they are Zoroaster's own words, we may well cite a description which portrays the Magian idea of god as a being who is "the first, the imperishable, the invisible; unbegotten and elemental[4]; the incomparable one, the ruler of everything beautiful; the incorruptible; best among the good, sage among the sagest; the father of law and of righteousness; self taught; of his own nature and substance (i. e., φυσικός); perfect and wise; the sole devisor of the holy order of nature."[5]

Certain Mythological Traits, or Traces of Old Survivals. Every religion shows traces of older survivals, or a lingering tinge of na-

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[1] Ys. **29**. 1; Ys. **33**. 11 (mercy); Yt. **19**. 46 seq.; Phl. Yōsht-ī-Fryānō, **2**. 57; Gt. Iran. Bund. (see Darmesteter, *Le Z. A.* ii. 305–322).

[2] Yt. **5**. 17; Yt. **8**. 25; Yt. **10**. 1.

[3] Ys. **31**. 8.

[4] Lit. "without parts."

[5] Euseb., *Præp. Evang.*, **1**. 10, cf. Kleuker, *Anh. zum Zend Avesta*, Bd. ii., Thl. 3, p. 125, and Jackson, *Zoroaster the Prophet of Ancient Iran*, Appendix V. § 18. In the magnificent folio of fifteenth century drawings in the British Museum, recently issued by Mr. Quaritch and entitled *A Florentine Picture Chronicle*, besides a picture purported to represent Zoroaster, there is also one number (No. 49) "Oromasdes raising the Dead."

ture worship, in its conception of the deity. The Psalmist's grand image of the divinity that rides upon the wings of the wind, with clouds and darkness beneath his feet, and with darkness and lightnings around his throne, or, again, who makes the heaven his seat and the earth his footstool, is a picture not free from naturalistic touches. Zoroastrianism cannot be expected to be more exempt than Judaism from preserving some traces of an original identity of the god idea with the sky.[1] Search in the Iranian scriptures will reveal the presence of certain physical traits in the notion of godhead which survive from an older stage of the religion and represent a more material and concrete conception than the spiritual and abstract idea described. We ourselves know how to judge of these.

The prayer to the father "in heaven" is as old as religion itself. God dwells in the sky and sometimes he is one with the sky. When Herodotus says the Persians "call the whole circle of the heaven Zeus," or when Darius invokes Zeus (i. e., Ormazd) as he launches the arrow skyward and vows vengeance against the Athenians, we see in these instances merely an evidence of what belongs alike to every religion, to every race and clime. Allusion has already been made above to such lingering touches of an original stage of nature worship or to mythological traces which may still be recognised in the figure of Ormazd.

Darmesteter has especially called attention also to certain points of likeness between Ahura Mazda and the divinity of the sky, if not of the waters, Varuna, in India.[2] These may be regarded as traits that have been preserved from a common Indo-Iranian or proto-Aryan period. But after all, the resemblances are subordinate in comparison to the individuality and originality of the Persian conception of the godhead; and they fade into the background when the figure of Ahura Mazda is viewed in its full light. How different, moreover, the fate of the Indian divinity was in contrast to the Iranian deity, may be judged from history. India's ancient

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[1] Cf. Cornill, *The Prophets of Israel*, pp. 20–21.

[2] Darmesteter, *Ormazd et Ahriman*, Paris, 1877.

divinity Varuna sank more and more into the shadow and grew dimmer and dimmer in outline. Persia's divine being advances more and more into the light, rising higher and higher as time goes on, and is transfigured under the idealistic touch of Zoroaster until it stands forth with an effulgence so brilliant as to render Mazdaism, or the religion of Mazda, almost monotheistic in its character because of this exaltation of the single Supreme Being.

Summary and Conclusion. Zoroastrianism, and the religion of Ancient Persia, presents us with a strikingly ideal conception of the godhead. In its purity and spirituality the figure possesses an individuality, elevation and loftiness that is not to be paralleled in the ancient religion of Greece, of Rome, of India. The gods of the Greek and Roman pantheon, with their human forms, their human passions, their human failings, can offer no likeness to the Lord God of Iran with his heavenly host of angels and archangels. Nor can the frenzied Indra, exhilarated by copious draughts of intoxicating *soma* and accompanied by the warring elements of the storm, afford a parallel. No, nor the pale and colorless Brahma, nor that vague Nirvāna or state into which the faithful follower of Buddha sinks back or is re-absorbed. No, none of these present a true match for such a conception of the Supreme Being as Zoroaster taught. The majesty of the kingly figure of Ahura Mazda in the Avesta, in the Achæmenian inscriptions, in the Pahlavi literature of Sassanian times—this truly characteristic production of Zoroaster's spirit—finds its parallel and superior in Sacred Scripture alone. The concept of Ormazd, however, in its purity, its ideality, its dignity, can offer a fair comparison to the flaming majesty of the Holy One of Israel, the God of truth, of justice, of power and of wrath, or to the Being who, in our Saviour's teaching, is more especially the God also of love, of goodness and mercy —the Father in Heaven in whom we believe and place our trust.

In one point, however, the god of ancient Persia strikingly differs from the God of Israel. This is in the attribute of Omnipotence. Ahura Mazda, although omnipresent and omniscient, is nevertheless not omnipotent; his power is ever limited, hampered, confined, by that self-existent, coeval, but not co-eternal, rival—

Anra Mainyu. "May Ahura Mazda rule at will over his creatures" —rule at will, as shall be when the millennium comes—this is the constant prayer of the pious Zoroastrian. But a fuller discussion of this point and of the resemblances between Ormazd and Jeho vah, must remain for another occasion.

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VITALISM.

THERE are certain undying questions which periodically recur in varying forms at successive stages in the advance of knowledge. And when these are critically examined they will generally be found to contain a metaphysical or noumenal element. Such a question is that which falls under the head of Vitalism. Is the conception of Vital Force valid, and is it necessary for the comprehension of the phenomena of organic life? This is the question I propose to discuss in the light of principles already considered. It will probably conduce to clearness if the question is distributed thus: Is Vital Force a valid and necessary conception in the sphere of metaphysics? Has it any *locus standi* in the sphere of science?

A reminder as to the distinction already drawn between science and metaphysics may here be necessary. Both deal with causation; both offer explanations. But whereas the explanations of science refer particular events to the generalisations within which they are comprised (thus the fall of a stone to the earth is referred to the generalised statement of universal gravitation); and whereas they deal with causation in terms of antecedence and sequence, the facts being accepted as data; the explanations of metaphysics offer an answer to the question: Why are the facts such as we find them to be? They deal with causation in terms of noumenal origin or *raison d'être*. The science of dynamics tells us that, given such and such nature and distribution of the parts of a material system, such and such movements or states of strain do as a matter of fact occur. If we ask why such movements or

strains occur under these circumstances, metaphysics replies that Force is the noumenal Cause of motion or of strain. It is true that at the beginning of treatises on the science of dynamics there is usually a reference to Force as the Cause of motion. But this is merely a pious tribute to metaphysics, like grace before meat, and has no influence on either the quality of the dinner or its subsequent digestion. Of such a nature is Vital Force. It is a perfectly legitimate metaphysical conception of the noumenal Cause of certain observed phenomena, and should take its place alongside Gravitative Force, Chemical Force, Crystalline Force and the rest of the stalwart metaphysical grenadiers.

It is in large degree because, when Vitalism is the topic of discussion, the disputants on each side fail to distinguish the metaphysical from the scientific elements of the question, that we seem to be as far from a satisfactory solution of the problem as were our fathers a generation ago. Only when the distinction is adequately realised will the combatants be prepared to confess that the battle is drawn, each side holding unconquered an impregnable fortress—the shattering of certain weak outworks, which should never have been occupied, serving only to show the real strength of the central position of either contending host.

It is unnecessary to enter at any length into the past history of the subject. Sufficient unto the generation are the conditions under which its problems must be discussed. Of old, before the forces of science had girt their strength about them, Vitalism held the field in easy if somewhat lax possession. Then came a period of organised attack. Chemistry and molecular physics had formulated and extended their generalisations and began to urge that the problems of physiology were problems of chemistry and physics—nothing more. There was no vital remainder. Taking their stand on the conservation of energy, they contended that the conception of Vital Force involved the appearance of energy without physical or chemical antecedents. This carried conviction among some of our leading physiologists. Prof. Burdon Sanderson wrote: "The proof of the non-existence of a special 'vital force' lies in the demonstration of the adequacy of the known sources of energy in the

organism to account for the actual day by day expenditure of heat and work." But an answer in due course came from the vitalists. It was pointed out that the application of a force to a moving body at right angles to its course, alters the direction of motion without affecting its amount. The energy remains unchanged. Of such a directive character, it is sometimes urged, may be the application of vital force without presenting any phenomena contradictory of the generalisation that, in the operations of nature, energy is nowhere either destroyed or created.

So long as the metaphysical conceptions of Force are carelessly commingled with the generalisations of dynamics as a science, this line of argument may appear to possess a cogency which is in truth fictitious. But what is the basal law of dynamics? That every movement of a part in any material system and every state of strain therein, has, as its antecedent, the assignable nature and distribution of the constituent parts in that system. This is a generalised statement of dynamic fact which quietly ignores (though it does not deny) the existence of Force as the noumenal cause of motion. Granting therefore that a vital force is conceivable which alters the direction of motion without producing any change in the amount of energy, the question still remains: Is the movement so produced in accordance with, or is it contradictory to, the basal law of dynamics? For the change of direction of motion is itself a motion, though it be unaccompanied by any increase or diminution of energy. If therefore the motion in question is the outcome of the nature and distribution of the constituent parts in a material system it is a natural movement co-ordinate with other physical movements, and Prof. Burdon Sanderson's contention is in essence valid, as a protest against supernaturalism, though it is incompletely stated; if on the other hand the motion is not such an outcome, then, though the conservation of energy may still hold its ground, what I have termed the basal law of dynamics cannot. There are movements of material particles which are outside this generalisation. It is questionable, however, whether there are many vitalists of scientific training who would care to contend for the truth of this conclusion.

It may be said that I have here quietly ignored certain essential features in any dynamical configuration—namely, the nature of the forces (gravitative, crystalline, chemical, electrical, and so forth) at work within the given system. But from the point of view of science the attractions or repulsions attributed to these forces are merely data to be accepted and stated as simple facts of observation. They are the outcome of the nature and distribution of the parts of the system—including under the head "nature and distribution" the totality of the antecedent conditions. No doubt the antecedent conditions are different according as we place a piece of cork or a piece of sodium on the surface of water. In the one case certain chemical attractions have to be taken into account which in the other case are absent. These form part of the dynamical data without which the problem is insoluble. Science accepts these data as facts in the phenomenal chain of antecedence and sequence. Metaphysics attempts to account for the facts by the conception of Chemical Force. The chemist, as man of science, says: Give me the facts of chemical dynamics and I will comprise them under broad generalisations. The Force, for what it is worth, may be given to that poor beggar of a metaphysician who sings his doleful ditty in the street.

At the same time it should be noticed that we do here open up an obviously important issue. No one has yet been able to show how certain observed modes of attraction can be developed out of others. No one has been able to suggest how, for example, the specific mode of attraction we call cohesion can originate from that which we call gravitation. All that we can say is that, amid all the varied modes of attraction, the sum of energy remains constant. A candid and impartial inquiry into the facts enables us to realise that, under these or those assignable conditions, new modes of attraction supervene—modes which, with our present knowledge, no one could have foretold, since in science it must not infrequently suffice to be wise after the event.

These facts are too often forgotten or overlooked by those who attempt a merely mechanical interpretation of phenomena. It appears to be undeniable that when oxygen and hydrogen combine

organism to account for the actual day by day expenditure of heat and work." But an answer in due course came from the vitalists. It was pointed out that the application of a force to a moving body at right angles to its course, alters the direction of motion without affecting its amount. The energy remains unchanged. Of such a directive character, it is sometimes urged, may be the application of vital force without presenting any phenomena contradictory of the generalisation that, in the operations of nature, energy is nowhere either destroyed or created.

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nomena of life are in question. The origin of life is a mystery; it marked a new epoch in Creation; its phenomena demand the belief in a quasi-intelligent directive force; its natural genesis is not only unproven but beyond the limits of human conception. Against such a doctrine of Vitalism an energetic protest should be entered, both by science and by a metaphysics which (if such a thing be possible) preserves its sanity.

In his recent presidential address before the chemical section of the British Association on the occasion of its meeting in Bristol (1898), Professor Japp urged the claims of Vitalism from the point of view occupied a generation ago by Pasteur. His presentation of the subject was admirably lucid, and his arguments ably marshalled. It is worth while to examine the position taken up by so well-accredited an advocate.

The salient facts and conclusions are briefly as follows: When polarised light passes through certain substances the plane of polarisation is rotated—in some cases to the right in others to the left. "The effect is as if the ray had been forced through a twisted medium—a medium with a right-handed or a left-handed twist—and had itself received a twist in the process; and the amount of rotation will depend (1) upon the degree of twist in the medium (that is, on the rotatory power of the substance), and (2) upon the thickness of the stratum of the substance through which the ray passes; just as the angle through which a bullet turns, in passing from the breech to the muzzle of a rifle, will depend upon the degree of twist in the rifling and the length of the barrel."

Now these optically active substances, as they are termed, may be divided into two classes. Some, like quartz, produce rotation only in the crystallised state; the dissolved or fused substances are inactive. Others, like sugar, are optically active and produce rotation, not only in the crystallised state but also in the liquid state or in solution. In the former case the molecules of the substance have no twisted structure, but they unite to form crystals having such a structure. As Pasteur expressed it, we may build up a spiral staircase—an asymmetric figure—from symmetric bricks; when the staircase is again resolved into its component bricks, the

asymmetry disappears. In the case however of compounds which, like sugar, are optically active in the liquid state, the twisted structure must belong to the molecules themselves. Such molecular asymmetry is, so far as we know, only found in organic substances; and their production is one of the distinguishing characteristics of living matter.

But there are sundry substances, such as racemic acid, which, though they are inactive, owe their inactivity to the equilibrium of opposite rotations. When a solution of one of the salts of this acid is evaporated, beautiful hemihedral crystals, belonging to the rhombic system, are obtained. Such hemihedral crystals are asymmetrical. But Pasteur found that they are not all alike. Half of them are lop-sided in one direction; the other half in the other direction. They answer to each other as our right hand answers to the left; each is the mirror image of the other. Such pairs are termed enantiomorphs. Furthermore, if all the right-handed crystals, and all the left-handed ones, be picked out and dissolved to make two solutions, each solution will be optically active, the one with a left-handed, the other with a right-handed twist. But in all other respects they are alike. Their salts have the same solubility in symmetric media, the same specific gravity, and so forth. It is assumed, therefore, that in the original solution right and left-handed molecules exist in equal proportions, and that their equal and opposite optical activities balance each other so as to give apparent inactivity.

If now such a mould as *Penicillium* be grown in a solution of the ammonium salt of racemic acid, fermentation takes place; and the solution, originally inactive, becomes optically active. The living substance is able to select all the optically right-handed moiety of the solution, leaving the left-handed moiety intact; and from this the appropriate lop-sided crystals, of one type only, may be readily obtained. It is urged, therefore, that there are two modes, and only two modes, in which the complementary types of molecules commingled in a racemic or analogous solution can be separated,—either by the selective action of a rational being who has this end in view, or by the action of living organic matter or its

products. The separation cannot conceivably be effected through the chance play of symmetric forces. The absolute origin of one-sided asymmetry is a mystery as profound as that of life itself. "No fortuitous concourse of atoms, even with all eternity to clash and combine in," says Professor Japp, "could compass this feat of the formation of the first optically active organic compound." "I see no escape from the conclusion," he adds, "that, at the moment when first life arose, a directive force came into play,—a force of precisely the same character as that which enables the intelligent operator, by the exercise of his Will, to select one crystallised enantiomorph and reject its asymmetric opposite."

Such is one of the latest pronouncements of Vitalism. Let us critically consider the evidence; but before doing so let us endeavor to be quite clear on certain preliminary matters of broad and general application.

Are we to regard the argument as special and applicable to Vitalism only; or are we to look upon it as general and applicable also to Chemism, Crystallism, and an indefinite number of other isms? Are we to look upon the directive force, analogous to that exercised by an intelligent operator, which, we are told, was called into play at the moment when first life arose, as something essentially different in its nature from anything which is found in the inorganic world? Is it alone characterised by its directiveness; or is such directiveness exercised elsewhere in nature in different modes and under different conditions? Again, is the inconceivability of the origin of asymmetry from "the chance play of symmetric forces," special to the problems suggested by living matter, or is it only a special example of an inconceivability which faces us in other regions of our extended survey of nature? Once more, is genesis by fortuitous concourse of atoms (a conception in itself bewildering in its irrationality) unsatisfactory where protoplasm is concerned, though satisfactory for inorganic products; or is it to be regarded as intrinsically absurd as a way of accounting for anything in an orderly world of phenomena? The answer to these questions is really of fundamental importance. It makes all the difference whether we are discussing something which is distinctive of life

and its origin—distinctive not only in its mode of operation but in its essential character—or whether we are discussing principles which are common to natural phenomena, including those of organic nature, in many of their varying phases. A belief in the former, as implying a supernatural hiatus between the inorganic and the organic, is to be regarded as unphilosophical and misleading; the acceptance of the latter is the logical outcome of a survey of phenomena and the teaching they afford.

I have no wish to imply that Professor Japp in his address intended to limit the application of a "directive force" to the phenomena of life. But I am quite certain that many of those who read that address will read it in this sense. And it is rather to them than to him that I would address the remarks that follow. It will serve to put the matter in a clearer light if we state the question in a somewhat concrete form, and ask: Is there anything in the phenomena of life which differs, not merely in mode of operation but in principle, from what may be discovered in the phenomena of crystallisation? It is convenient to select crystallisation because here also we are presented with certain optical effects.

First let us consider the building up of crystalline forms. All known crystals may be classified in six groups or systems, and their forms being solid geometrical figures, the relations of the faces to each other may be expressed geometrically. To lessen confusion, let us limit our attention to three readily obtainable crystalline forms. If we allow a solution of aluminium-potassium sulphate to evaporate slowly, large octohedral crystals of alum will be produced. Each is symmetrical in all crystallographic respects. Each has six points or solid angles, and it matters not which of these points is placed uppermost. Imaginary straight lines drawn from point to point within the crystal are spoken of as the axes. There are three such axes, all at right angles, and all of equal length; and any face of the crystal cuts three of these axes symmetrically at equal distances from the centre of the figure. Next allow a solution of sulphur in carbon bisulphide to evaporate slowly. Rhombic crystals of sulphur will be obtained. There are six solid angles as before, but they are not symmetrical in the same sense. They

answer to each other in opposite pairs, but they are not all alike. There are three axes, and all are at right angles, but they are all of different lengths. Any face of the crystal cuts three of them, but at unequal distances from the centre of the figure. Whether we take large crystals or small crystals, these distances are proportional; and the angle between any similar pair of faces remains constant. Thirdly, let a solution of sulphate of copper evaporate and give rise to crystals of blue vitriol. The geometric figure is far less simple and symmetrical. At first it may seem that all the faces are dissimilar. But closer study shows that there are pairs of faces, situate opposite and parallel to each other, which are alike; but no one of these pairs is like other pairs. There are still three axes; but not only are they of different lengths, but no two are at right angles to each other. They are inclined at different angles; hence they are said to belong to the doubly-oblique or triclinic system.

Such, stripped as far as possible of technical details, are the observed facts with regard to these three kinds of crystalline architecture. The alum, the sulphur, and the blue vitriol, present us with three types of crystal; but the crystals of each substance remain true to their several types. There is no theory about this; it is merely a statement of facts of observation; for the reference to supposed axes is merely for convenience of geometrical expression. Apart from crystallisation there is nothing quite like this method of building in nature. To say that such crystals result from the fortuitous concourse of molecules is nothing less than grotesque. But if it is not a fortuitous concourse of molecules, it must be a directed or (to use a better word) determinate concourse. How then does the determinism of the crystal, each after his kind, arise? A science which has learnt the grace of modesty can only reply: We do not know. To drop into the colloquial, if not very elegant, prose of Dr. Watts's hymn, one can but say: For 'tis their nature to. Such are the facts. We believe that they are the visible expression of certain attractions or repulsions; and if we like to dip into metaphysics we may add that the cause of these attractions is crystalline force. Surely we may say here with just as much (or as little) cogency as may be said with regard to the phenomena of

life, that when the first crystal arose, a directive force came into play—a force of precisely the same character as that which enables an intelligent operator, by the exercise of his will, to build up the model of a crystal.

If it be urged, with an almost desperate appeal to metaphysics, that the potentiality of assuming the crystalline form existed in certain kinds of matter ere ever a crystal was formed, it is difficult to see wherein this assertion differs from Tyndall's celebrated poetic outburst, when he proclaimed that he could "discern in that matter which we, in our ignorance of its latent powers, have hitherto covered with opprobrium, the promise and potency of all terrestrial life." Such appeals to potentialities and potencies do not really help us in any appreciable degree. To say that crystalline polarity is due to the polarity of the molecules merely shifts the question back a step; for we must still ask: How did this molecular polarity arise? At some stage, sooner or later, we are brought face to face with the final answer of science; that such is the observed or inferred constitution of nature. The reference to potency and potentiality is merely a somewhat pompous mode of stating that what does occur under certain conditions can occur under these conditions.

We may now pass to the brief consideration of certain optical effects which are observable in our three crystals. If a number of sections be cut, so as to give us flat plates, some being cut from the crystal in one direction and others in other directions, that is to say, making various angles with the geometrical axes; and if these be placed on a piece of white paper over a minute inkspot thereon; then it will be found that, in the case of the sections or slices of alum, they are all alike in exercising no peculiar influence on the rays of light passing through them from the inkspot. Through every one of them a single image of the inkspot will be seen. There is no double refraction. But in the case of all, or nearly all, of the plates of sulphur or blue vitriol (in all save those which are cut at right angles to two imaginary lines termed the optic axes) two images of the inkspot will be seen, or might be seen if the plates were thick enough and sufficiently transparent.

The slices exhibit the phenomena of double refraction. The rays of light which pass through the crystalline plates are divided into two groups. And by appropriate means it can be shown, first that the two groups pass through the plate at different rates, one group being more retarded than the other; and secondly that each group consists of polarised rays, or rays the vibrations of which are all parallel to one plane. In the two groups the planes of polarisation are at right angles; thus if we call the one *N* and *S* the other will be *E* and *W*.

It is clear therefore that there is something about the crystalline plates of sulphur and blue vitriol (and these differ from each other in ways which need not be entered into) that produces certain peculiar optical effects. Now it is found that a plate of glass behaves just like a plate of alum and produces no double refraction. But if the plate be unequally heated, or if it be subjected to a mechanical twist, double refraction is induced. Since therefore this optical effect may be artificially induced by differential strain it is reasonable to suppose that the plates of sulphur and blue vitriol are, under natural conditions, in a state of differential strain, of which double refraction is the optical expression. And since solutions of sulphur and blue vitriol show no double refraction it is reasonable to suppose (on the assumption that the molecules themselves undergo no change during solution) that the strain is produced by the interactions of the molecules when they assume the crystallised state. So that, if we are to use the analogy of the intelligent operator, not only does he build up the crystals in definite geometric forms, each true to its system type and to its generic and specific type within the system, but he introduces the dynamic element of differential strain itself true to its system type, and to its generic and specific type within the system. And these differential strains are not manifested until crystal forms arise in the course of what we believe to be a natural process of evolution.

There is one more lesson which the crystal has to teach. It exercises a further differential influence which is markedly selective in its nature. If, for example, we take a plate of the mineral tourmaline, cut parallel to the principle geometrical axis, the light

within the crystal is divided into two groups of vibrations polarised in opposite planes. But only one group passes through the crystal and reaches the eye; the other is quenched within the plate. So that the crystallised substance "selects" one set of polarised rays for transmission and the other set for extinction.

Some crystals of quartz exhibit small asymmetric faces. The common form of this mineral, with a hexagonal prism capped by a hexagonal pyramid is a familiar object. But sometimes the solid angles between the prism and the pyramid are asymmetrically bevelled off to form these tetartohedral faces. And these faces are situated in some cases to the right and in others to the left. The complementary forms are thus mirror-images of each other. They answer to each other as the right hand answers to the left. They are enantiomorphs. And each has the property of rotating the rays of plane-polarised light to the right or to the left according to the position of the asymmetric faces. These effects may be attributed to differential strains; and since they are only observed in the crystalline condition of quartz, it is held (on the assumption that fusion does not alter the molecules) that the strains are inter-molecular (or between the molecules) and not intra-molecular (or within the molecules). However they arise, there they are, exhibiting a yet further differential effect on the ray of light. We do not know whether the right-handed or the left-handed forms predominate in nature; or whether the numbers, or the joint mass, of the one exactly balance those of the other.

Thus we lead up to the enantiomorphs in crystalline substances of organic origin. As Professor Japp points out, the fact that an optical twist is produced, not only in the crystalline condition but also in solutions, leads us to suppose that the differential strain is intra-molecular and not inter-molecular. His thesis is that, since the enantiomorphs or mirror-types are produced in complementary pairs (right-handed and left-handed rotation being equal and opposite in amount) the selection of either for predominance is "absolutely inconceivable" under the play of symmetric forces. But the teaching of the crystal has made us familiar with the fact that a mode of optical "selection," if not this mode, occurs under the

play of natural forces. For the tourmaline plate selects vibrations in one plane for transmission and vibrations in the opposite plane for extinction. And the teaching of the solar system with its predominant anti-clockwise rotation, has made us familiar with the fact that from the play of (presumably) symmetric forces an asymmetric resultant may arise.

Let us however look at the actual facts. We find that from a racemic solution enantiomorphous, mirror-type crystals, up to a size of, say, half an inch, may be produced, some right-handed, others left-handed, in equal amounts. What gives rise to the observed preponderance of right-handed molecules in the one crystal and of left-handed molecules in the other? Must we not reply either that there is a selective influence at work at a stage prior to that postulated, or at any rate emphasised, by Professor Japp; or that chance gave an initial preponderance, here of the one and there of the other, and thus formed nuclei for the further segregation of like to like?* Either answer is difficult to square with Professor Japp's essentially vitalistic conception. In any case crystals half an inch or so in diameter, some right-handed and others left-handed, are actually formed. And it is scarcely an extravagant supposition, one certainly not beyond the bounds of conceivability, that, given a finite number of such crystals, a quite indiscriminate mode of destruction might reduce this finite number to one, or to a small uneven number, and thus leave a group with a preponderance of one or the other type of molecule.

Now granting that the first formed organic molecules were possessed of equal and opposite rotatory powers, is there anything inconceivable in the supposition that when these segregated into units of protoplasm, some of these units were right-handed, and others left-handed, in equal amounts? Nay rather, may we not apply the lesson of the racemic crystals here, and urge that the observed segregation in the crystals renders it probable that a similar segregation occurred in the units of protoplasm? And the analogy

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[1] Prof. Karl Pearson has, since this was written, adopted a similar line of argument. See *Nature*. Nov. 10th, 1898, p. 30.

in the two cases is strengthened when we remember that the rotatory property is not the outcome of the crystallised condition but is (as solution is held to show), of intra-molecular origin. But if this be so the units of protoplasm, the initial starting-points of life (starting-points with some of which existing life is continuous), were individually asymmetric, though in the aggregate of distinct individuals their asymmetry was complementary. And this is just what is denied to be conceivable under natural conditions! So far from being inconceivable it is precisely that which known facts render inherently probable.

Lastly, if we grant that, when protoplasm first came into being, asymmetric molecules had their initial genesis, is there anything here different in principle from that with which the study of inorganic nature has already made us familiar? Such asymmetry is presumably due to differential strain between the atoms, or between subordinate groups of atoms, within the molecule. But the lesson of the crystal tells that certain modes of differential strain, elsewhere unknown in nature, arise under appropriate conditions, and should prepare us to learn, in the succeeding organic lesson, that other modes of differential strain may arise under other conditions. When we remember of what an extraordinarily complex group the molecule of protoplasm in all probability consists, it seems hazardous to assert that circular polarisation cannot be its natural prerogative, just as plane polarisation is a natural property of the much simpler group of molecules in the crystal of sulphur or blue vitriol, especially when we find crystals of quartz and other inorganic substances, possessed of circular polarisation.

And so, after (it is feared) much technicality of discussion,—technicality which can scarcely be avoided if the discussion is to be adequate,—we reach the conclusion that, in so far as the hypothesis of Vitalism merely directs our attention to those new modes of attraction and of intra-molecular strain, together with other concomitant properties, the occurrence of which in living matter is observed or inferred, it is doing good service. But when it asserts that any natural connexion or analogy between these properties and those found elsewhere in nature is inconceivable; when it hints at modes

of action not in accordance with the conservation of momentum and what has been described as the basal law of dynamics; when it invokes the *special* intervention of a directive force, analogous to that exercised by an intelligent operator; then it is not doing good service and must be arraigned at the bar of science and metaphysics. And if vital force is to be placed alongside crystal force, as the noumenal cause of certain observed or inferred attractions and repulsions, we can discuss its validity without doing violence to our conceptions of the universe as a rational whole; but if it is to be regarded, not as immanent and acting within the material system, but as external and introduced from beyond the system, then we must regard it, not as a friend to be welcomed, but as a foe whose insidious attacks must be repulsed lest it hold our weaker brethren in bondage.

Notwithstanding some appearances to the contrary, I venture to hope that the conclusion to which we have here been led is substantially in accord with that which Mr. Herbert Spencer reaches in the new edition of his *Principles of Biology*. He there contends for a principle of activity, elsewhere termed a special kind of energy, which constitutes the essential element in our conception of life. He urges that this is conceivable neither as something superadded from without, nor as something inherent in organic matter. And he regards it as due to that Ultimate Reality which underlies this manifestation as it underlies all other manifestations. He reminds us that the actions of that which the ignorant contemptuously call brute matter, cannot in the last resort be understood in their genesis. And in concluding that, on the one hand, we find it impossible to think of life as imported into the unit of protoplasm from without, so also, on the other hand, do we find it impossible to conceive it as emerging from the co-operation of the components; he attributes this to the fact, that while phenomena are accessible to thought, the implied noumenon is inaccessible; that only the manifestations come within the range of our intelligence, while that which is manifested lies beyond it.

We will not stay to inquire how it comes about that the existence of a noumenon inaccessible to thought can be implied. Mr.

Spencer's meaning, I take it, here and elsewhere, is, that though noumenal existence is implied, and so far comes into the field of thought, its nature is unknowable,—a conclusion which need not here be discussed. The essential point seems to be that new modes of manifestation imply new modes of activity in the noumenal cause; and this is just the conclusion to which our own discussion has led up. At the same time there are some statements of Mr. Spencer which may well seem to indicate an interpretation different from that which I have endeavored to present, and more akin to that against which I have been contending.

On the first page of the *Principles of Biology* we are told: "The properties of substances, though destroyed to sense by combination, are not destroyed in reality. It follows from the persistence of force, that the properties of a compound are the resultants of the properties of its components,—resultants in which the properties of the components are severally in full action, though mutually obscured." And in the discussion of the dynamic element in life we read: "The processes which go on in living things are incomprehensible as results of any physical actions known to us;" and again: "We find it impossible to conceive life as emerging from the co-operation of the components of protoplasm." Now, if these statements be taken to imply that in the organic world an incomprehensible principle of activity comes into operation different, not only in its mode of manifestation, but in its essential nature, from anything to be found in the inorganic world, (and this at first sight does seem to be implied,) then must Mr. Spencer be looked upon as a champion of Vitalism in its unsatisfactory form. I cannot believe that this is the true reading of Mr. Spencer's statements. It does not accord with the broader contention that the Ultimate Reality behind this manifestation, *as behind all other manifestations*, transcends conception. It must be remembered that Mr. Spencer has (to our great loss) been forced to omit from his System of Philosophy the volumes which should have dealt with inorganic evolution. May we not, from the general tenor of his thought from such statements as are found in the "letter to the Editor of *The North American Review*," and from other passages of his works,—may we not

from these conclude that, had the inorganic volumes been written, it would have been shown that in the genesis of the crystal too a new manifestation of Force came into play? And may we not fairly place parallel to each other the following assertions: first, that we are obliged to confess that life in its essence cannot be conceived in physico-chemical terms,—one which Mr. Spencer does make; and, secondly, that we must similarly confess that crystallisation in its essence cannot be conceived in gravitative terms,—one which Mr. Spencer does not make, but which is, I conceive, nowise contradictory of anything that he has written?

But perhaps I have no right to fly the commodore's flag at the masthead of my own craft; and, in any case, no impertinence to a superior officer is thereby intended. The conclusions reached must be taken for what they are worth; no banner of authority can render them better or worse. Those conclusions are, that, if by Vitalism we give expression to the fact that living matter has certain distinctive properties, it may be freely accepted; but that if by it we imply that these properties neither are nor can be the outcome of evolution, it should be politely rejected; and further that, if by Vital Force we mean the noumenal Cause of the special modes of molecular motion that characterise protoplasm, its metaphysical validity may be acknowledged, so long as it is regarded as immanent in the dynamical system and not interpolated from without in a manner unknown throughout the rest of the wide realm of nature.

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EVOLUTION EVOLVED—A PHILOSOPHICAL CRITICISM.[1]

INTRODUCTORY NOTE.—May I begin by forestalling certain possible criticisms or misunderstandings of what I am to say here? True, in the course of my paper I shall issue occasional cautions, but an introductory caution or two seems desirable.

Thus, I am far from making a personal attack upon evolutionists. Darwin, among others, will still be left when I am through, and his contribution to thought will seem greater, not less, if the purpose of my paper is even only approximately realised. A truly philosophical criticism does not attack; it examines and tries to fulfil. To carry evolution through to its only legitimate conclusions, to evolve evolution, as my title has it, is what I have undertaken. I would do something towards freeing evolution from the integument of other views out of which it has sprung.

Furthermore I recognise that science and philosophy are separated in their interests, or in their points of view. Some of the evolutionists' doctrines, that I am to criticise, are without doubt due to the necessities of what we call scientific investigation and formulation. Science as science has to deal with details, with special spheres of experience, while philosophy can never stop short of a theory of the universe. But, nevertheless, the limitation of science is no reason for objecting to the critical examinations of philosophy; it is, on the contrary, an ever present demand for philosophical criticism. The partial view, however scientifically accurate, cannot but be also formal or phenomenalistic.

And I recognise that science is in reality not so very far from what my criticisms here will seem to be exacting of her. She is, then, not so far behind philosophy as I may seem to be making her. The scientists in many quarters have indeed been their own critics, and in point of fact philosophical criticism never comes under other conditions, never comes, as it were, out of a clear sky. The philosopher can only formulate the thought that already is. Some evidences of sci-

[1] This paper was read before the Katholepistemiad Klub, of the University of Michigan Faculty, and also at a public meeting of the University of Michigan Philosophical Society, in October, 1898.

ence's present progressive condition are to be mentioned here and many more might be and there simply must be many others of which I am ignorant. But, aside from what has just been said, that philosophy only formulates existing thought, my criticism must be taken to be as much of a general standpoint as of specific doctrines, and it must be remembered also that a philosopher has always a double responsibility. He must wait upon science, and in addition upon the prevailing understanding of science, being in his social function a mediating agent, and this double responsibility is bound to hold him a little "behind the times," as the phrase runs. It is a strange phrase, is it not?

And, as a last introductory caution, if you are now holding in your mind certain ideas, whether from ordinary life or even from science, of such words as organism, environment, life, individual, inorganic, and the like, then as a philosopher I must ask you not to expect me to conform slavishly to your verbal dogmas. Did I conform, my very criticism would have to go to the winds. It is not the function of philosophy—and this is hard for a great many people, even for modern evolutionists, to understand—to perpetuate dogmas. The function of philosophy is to evolve the inner truth or the inner spirit of a dogma out of the letter that oppresses. Science, as the clearest and most exact formulation of the ordinary consciousness, may need a fixed, a dogmatic terminology, but philosophy is too self-conscious, too self-critical in its use of words to rest upon any such uncertain certainties. But you say, with so many others, that philosophy should devise a terminology of its own. How thoughtless you are! Would you rob philosophy of her relation, of her responsibility to life? Would you—well, perhaps you would disarm her criticism!

EVOLUTION EVOLVED.

IT is fair to suppose that the prevailing good-natured toleration between science and philosophy is in control here. Of course, philosophy is always ignorant of facts, and science in her turn is at least equally blind to conclusions or to so-called metaphysical implications. Facts, moreover, being of necessity partial and abstract, are certainly not less misleading than the visions of the invisible that philosophy so delights in; nor has the blindness of science been one whit more useful in man's progress towards an understanding of his universe than the ignorance of philosophy. If the blindness of our modern science to what we often hear styled the truths of the spirit has been the means to all the wonderful discoveries of the century, we need to remember also that the ignorance of Socrates, or more specifically the growing mistrust of the

senses that came to the Mediterranean peoples in Socrates's day, made our modern era possible, and that only by a similar ignorance at the present time can the knowledge of our day ever hope for fulfilment in a real wisdom.

One of the ways in which an ignorant philosophy deals with a blind science is to raise a cry for consistency. Scientific theories, although founded on facts or because founded on such transitory things as facts, must be first of all responsible to each other. The different sciences are but so many different views of one reality. Their different fields are but different related aspects of a universe. Undoubtedly it is true that theories, even in widely separate spheres, always are in a striking degree sensitive to each other's contentions and to each other's changes. They are sensitive even in spite of themselves, as their history shows; and the interaction among them does but indicate how true it is that an organising mind lives within or underlies—only neither of these metaphors is at all adequate—the separate thinking of individuals. But philosophy, issuing a call for consistency, aims to make the indwelling or underlying mind more clearly conscious of itself. Philosophy would awaken the sciences to a living sense of their mutual responsibilities.

And the awakening always transfigures the universe that the blind theories had been staring at so zealously. Space and matter and life and man and any one of the other interests of the different sciences are not so many separate details that can be separately studied. To study them separately is to get only abstract and wholly phenomenalistic results, although what Herder called "the wonderful symmetry" of things or of minds always insures the *form* of a truth that is universal, that is fundamental and really concrete. All the many interests of the sciences, I repeat, are one, and accordingly the understanding of them must be a single consciousness, a single organising and transfiguring idea. The form that springs from the symmetry must come to light as *the pre-eminent fact*. What an evidence of our human frailty that the word fact ever got a plural! Has not somebody said somewhere: "Fact is one and single; facts are lies?" If not, somebody ought to have

said it long ago; and to have said it particularly with reference to the "facts" of life, man, matter, and the rest.

But, here to turn to the special business of this paper, there prevails among us and has prevailed for a number of years a certain hypothesis, the evolution-hypothesis, which it has seemed to me was well worth our consideration and philosophical criticism at this time. Not that I imagine that we are likely to find it essentially wrong, but possibly it ought itself to evolve a little. I know that it has been with us long enough to be rather commonplace and even in the minds of many among the thoughtful and well-informed to be regarded, or at least to seem to be regarded, as final, but after all is said it has not been with us long enough to *prove* to any thoroughly careful student of history that it is more than a passing phenomenon. There were evolutionists among the ancient Greeks and possibly they will some day be found to have been forerunners of Darwin not only in their advocacy of evolution but also in the passing of their point of view. Current science may resent this suggestion but philosophy has no choice but to make it. Moreover, if I be not very much mistaken, the evolution-hypothesis is already suffering, not from the perennial attacks of such as still believe in sudden creation and external design but from a rational and thoroughly enlightened skepticism. The limitations of evolution instead of its possibilities are occupying considerable attention, and questions of origin and even of destiny are not quite as absorbing as they used to be. But, to dismiss these possibly unpleasant insinuations, it is fairly safe to say that we are all pretty well in line with the times and disposed to call ourselves evolutionists, and some of us are even zealous evolutionists. Not that we all understand literally the same thing by the word, but we have a certain common standpoint from which we take our views of things. Thus, almost instinctively we use the historical method; we cannot admit to our serious thinking any slightest suggestion of an arbitrary causation or creation; on the whole we prefer Darwin to the Book of Genesis; we like to speak or hear and even to think of the community of living things. And yet—and here is seen the need of a philosophical criticism—although we are evolutionists, we are still,

most of us and perhaps all of us, entertaining with different measures of interest notions of our world that are not consistent with evolution. Evolution cannot possibly justify them as conclusions and so long as we hold them in our minds, however consciously or however vaguely, we fail to get the inner truth of evolution itself. An enthusiastic biologist recently said in the course of a discussion on a certain point that was outside of the recognised field of the biological sciences, that without any reasonable doubt evolution was true, but that as to the point in question such and such might be true and it might not, and whether it was or not did not seriously concern him "What blindness!" we have to exclaim at once, since even evolution is concerned with everything. And, when it does not concern itself with everything it can surely be only a passing phenomenon and ought to be criticised and must need evolving.

What, then, are the inconsistencies that have been referred to? To enumerate them completely would be idle. It would be impossible. Any enumeration is without limit; and, as dangerous in papers of this sort as in sermons, it is a sure mark of misunderstanding. One can as easily add another case of anything as count from two to three or from a million to a million and one. Accordingly, what we have to do is to get from but a few cases of current views that are inconsistent with evolution the condemning mark of them all. In point of fact any one case carefully examined would be enough. After the consideration of a few cases, however, a proper philosophical sensitiveness to consistency as a principle will possibly have been quickened within us and we shall have come so to understand the evolution-hypothesis that it will be transfigured and we may even hope to get from it, not a mere partial and phenomenalistic theory but a real insight into the character of the universe as a whole. And, parenthetically, if in what follows I take up for criticism things that in your opinion no evolutionist ever said anything about one way or the other and charge them to evolution, you have only to remember how strictly true it is that one cannot, that even a scientist cannot, speak of anything whatever however remote, without implicitly saying something about every-

thing and that the first duty of a philosophical criticism is to read between lines and discover just what is implied in the open assertions. This paper might have been entitled "The Fatal Implications of Evolution"; only upon one or two of the points referred to the scientists happen to have been quite explicit.

We begin by asking if evolutionists have any right to admit even the possibility of an inorganic lifeless matter. That evolutionists do admit this possibility is without question; and, to bring the case home, that our universities, without appearing in any quarter to feel that a contradiction is involved, give instruction both in an evolutional biology and in a physical science which holds to an inorganic material substance is—what shall I say?—well, it is one of the intensely interesting phenomena of modern education. Darwin, in his *Origin of Species*, as if anxious to leave nothing out,—and is it not strange into what grim fate anxiety will always lead?—is ever at greatest pains to recognise both "the organic and the inorganic conditions of life," and his attitude is characteristic of his followers. Thus, the point of discussion with the biologist who was mentioned here only a moment ago was just this of the existence of an inorganic substance. But, to face the issue directly, how can life have inorganic conditions? The inorganic cannot but serve by its sheer negativity, by its strangeness or external nature and arbitrariness, as an insurmountable obstacle to any really evolutional process in life. Grant an inorganic matter, a matter to which life is altogether foreign, and at sometime, never mind how long ago, there must have been a creative act, whereby the lifeless matter that was came to live, although to live a life in all important respects unnatural or not essential to it; and at every time, that is to say, whenever a living creature, whether a highly developed man or the primitive protoplasm, expresses an adjustment to its physical conditions, there must be repeated the miracle of creation, the miracle of abiogenesis. Some may prefer to speak of adjustment by chance instead of by miracle, as if chance were a safer term for science, miracle being left to creationism in religion; but for the creatures themselves that are involved the difference is zero. A world of miracles is a world of chance. Excuse the truism.

Herbert Spencer was logical or candid enough to couple with his metaphysical doctrine of an unknowable irrational something, as if an alien substance, underlying all existence, a biological doctrine of adjustment by chance or—and this is the same thing—by the blindly tentative activity of a lot of wholly random impulses. Random impulses and chance adjustment are the only hope of an organism with inorganic alien conditions to relate itself to. But, again to put the case and to put it somewhat differently, if matter is not living, if life is not *essential* to the physical, if the physical and the organic are not one and the same, if, in short, there really is a lifeless, inorganic realm, then life in the physical world must be a transitory thing, beginning at a certain time and ending at a certain time and for whatever time it abides—whether for a short time or for a long time does not matter—being altogether strange to the conditions environing it; and whence and whither will be the most natural interests of living creatures, where and how being too direct and too practical. Interesting indeed it is to see how the creatures that professing evolutionists tell us about, creatures that have been observed in nature or studied so carefully in laboratories, are made to live in their world but not of it,[1] very much like their contemporaries among men whose lives they somehow, by some curious movement in human thought, have been made to reproduce and even to parody. Perhaps science is meant to be dramatic and satirical; but, be that as it may, to return to our contention, a life whose adjustments in any degree depend on chance or miracle, a life that is transitory and strange, cannot evolve. You may be able to discover stages in its history and even to arrange these stages in what you are pleased to call an evolution-series, but in just so far as you admit to your universe a lifeless condition of life you will have to corrupt your evolution-series with fatal breaks or jumps; your Spencerianism or your Darwinianism, true to the spirit if not to the letter of the master, will certainly have to fear that creation-

[1] Creatures are made to live in their world but not of it, whenever their activity is regarded as the effect merely of some antecedent cause, or whenever it is treated as a reaction upon wholly external conditions, or whenever in any way it is subjected to an abstract or a partial explanation.

ism as a restless shade will return to view and ask for a decent burial.[1]

But, secondly,—and you will quickly see that here is really no second and separate inconsistency of the current evolution but merely a slightly different view of the first,—how can the evolutionist think of development as taking place in the life of an organism or of a group of organic forms and at the same time assume that the environing conditions of the development remain fixed or if changing change independently of any relation to the developing life? You will, I believe, as your attention is called to the matter, find it a necessity of thought that the evolution of organic forms and the qualification of their environment proceed, as it were, hand in hand, or better, as if one were the right hand and the other the co-operating left hand, being contemporaneous and organically related phases of one movement. Under a consistent evolution, organism and environment must be the most perfect functions of each other. When, however, Darwin tells you of living creatures becoming "ever more and more improved in relation to their conditions," and when you find the spirit of this formula permeating many of his paragraphs and infecting also the discourses of evolutionists generally, your thinking has a shock. And you wonder, to say the least, that a view so strange to thought can have held its own so long. Nor has biology been alone in the offence, for psychology has been guilty of a corresponding error in her effort to apply evolution to the process of knowledge or consciousness and at the same time to continue to treat the object of knowledge as a

[1] I might say here, but in a note, because it ought to go without saying, and because also I seem to myself to have said it already, that evolution should not and cannot be made a matter of mere so-called scientific observation. The microscope, however powerful, is still limited to the eye, and things seen are never final. There are other necessities of truth than those of objective perception. The truth or falsity of abiogenesis or spontaneous genesis must depend on something more than what experiment and observation can discover. Besides observation there is thought, and the two are literally functions of each other and are strictly responsible to each other. Thus the visible must be also thinkable before it can be said to be real. And that evolution in relation to a lifeless matter is not thinkable has been the burden of the recent paragraphs. Philosophy's call to science for consistency means in general that the thinkable as well as the discoverable must be taken into account. The thinkable is all that ever can be truly discovered.

fixed or at least relatively unchanging something that exists independently of the subject. But surely it is absurd to suppose that the conditions of life stand still as something in themselves established and only to be approached ever nearer by living creatures. On such terms evolution is made sheer perfectionism with all the hopelessness; and, as before, so here it is made dependent on the arbitrary or the miraculous. To be moving, however rapidly, towards a goal infinitely distant is not as a matter of progress appreciably better than to be once for all held in a state of absolute imperfection and so abjectly dependent on some agency from without to take you over the impassable chasm. Accordingly in the simple cause of consistency the evolutionist must dismiss from all chance of influence on his thinking not only the existence or possible existence of an inorganic matter but also the fixed environment and the infinitely remote goal of a perfected adjustment that goes with it.

Now is it not curious that science, while opposing the dogmatism and formalism and supernaturalism of religion, should have been so rash as to offer for a substitute a view of life that we are finding to be not one whit less deterministic? Surely, as was suspected by us before, science is given to satire. She has been able to do without the material of the old religious teaching, but the form, the attitude of mind, the underlying controlling principle she has retained, applying it to every minutest detail of nature; and her universally applied creationism is satire supreme. No wonder evolution and religion have been hostile to each other. Determination being on both sides, there had to be a conflict, and the conflict is our security for something better than either evolution or its opponent.

Of a piece with the perfectionism of evolution is the idea that evolution is away from something. Evolution, however, can be thought neither as toward something which as yet is not nor as away from—in the sense of literally and completely out of—something. Somebody picks up a clod of earth and exclaims: "You need not tell me that life can come out of that, that that can live." Another objects to the doctrine of man's evolution from the lower

animal. And a third fears to lose his soul under an evolutional régime,—as if forsooth a thing worth keeping at all ever could be lost. But no one of these three would need to be so troubled in his mind if he would only recognise for himself that in reality evolution must be not of life out of clods nor of men out of animals nor of souls out of bodies, but of life *with* the conditioning clods and of men *with* the accompanying animals and of souls *with* the physical bodies. Do I need to repeat here that environment in general, in its qualities or values, in its character, is itself a result of evolution? It is as much a result of evolution as any of the evolved creatures related to it. Indeed the relation more than anything else is what evolves.

And perhaps my meaning will be made clearer if I suggest further that for a consistent evolutionist lower and higher as applied to contemporaneous existences are exceedingly dangerous terms. Matter and mind are often said to be lower and higher respectively; in fact they are regarded as lowest and highest; but the terms so applied are very misleading. Matter and mind are related contemporaries, and like all contemporaries are responsible for each other's character. They are conditions of each other. Each is, in fact, but an abstraction for something in the other. Letting these extremes go, however, we more naturally consider here certain very familiar intermediate stages or degrees. Thus the animals about man are not essentially lower than he; he is not higher; but he and they are the related and so mutually determining and mutually dependent aspects of one life. Man has within himself an animal nature and only in and through this can he ever freely express what he is; or, again, the human grows out of the animal but never outgrows it. Were the conditions of life really fixed, being somehow independent of life itself, and the goal of life consequently only approachable, a higher *separate* nature for man might be accredited; but also there could be no true evolution and that means no truly and substantially responsible activity. Not in escape from the lower, but in expression and realisation of it, can the higher consist. Even while at work upon this paper I have heard a discourse in which the development of man was strikingly and—at least in the

speaker's opinion—also optimistically described as from a condition in which man was one-tenth spiritual and nine-tenths physical to a condition—that of the present—in which he is nine-tenths spiritual and one-tenth physical, and this description, shorn of its mathematical precision, is quite in line with what evolutionists, even the most scientific of them, have been teaching more or less directly for a long time. We cannot help, however, being very grateful that even so small a physical part is still allowed us and we are likely, merely for the needs of our thinking, to face any danger of retrogression or of atavism or of anything as bad or worse and hope for a larger part in course of time. Yes, it would certainly be hard to find a more deceptive phrase than this, so often used, "the evolution of man," in which the view, that has just been before us, is so quietly and confidently entertained. Only the whole to which man belongs evolves; or man evolves with the whole, not out of it. Parts, whether great or small, whether significant or insignificant, do not evolve away from each other.[1] And with this way of putting the case in hand we reach a difficulty among evolutionists that is of very special interest.

Thus, a third point of inconsistency—or is it a fourth? for I believe I had stopped counting—is in the prevailing view that evolution has of individuality. Although avowing the developmental view of life, it has generally persisted in treating life as a peculiar property or function resident in certain physical bodies, and in consequence the living individual has been very physically conceived, being determined primarily by spacial and temporal conditions. Rather has the thought been, or seemed to be, that an individual body as so much physical mass lives, than that life is a matter of

[1] The evolution of man, as if of a single part of nature, is an idea which quite within itself makes necessary the missing links in his own peculiar evolution-series. Only the evolution of the whole can be seen to be without breaks, to be perfectly and consistently continuous. Study the separate development of a part and you cannot but find sudden beginnings, repetitions, evidences of atavism, strange anticipations, arbitrarily persistent types, and sudden disappearances. On the other hand, study the development of the whole and not only will the series be continuous but also its very continuity and consistency will bring even the remotest past into the present, or, as the same truth, the present in its manifold of coexistences will be found to be a complete recapitulation of the series.

the universe as a single and indivisible whole; being the activity in which the relation of a body to its surrounding conditions is expressed or maintained; but life as a relation, or rather, to be more explicit, as that wherein relationship is actual and ever actualised, instead of life as an indwelling property, is indisputably a necessary doctrine of a consistent evolution. Did physical bodies live independently of any relationship, were relationship not a primary condition of life, such activities of living creatures as ever find expression would have to be creative of a relationship, being quite arbitrary or irresponsible reactions on environment, and through them plainly enough development or evolution could never take place. Or is it untrue and have we been deceived in presupposing that for real evolution activity must be originally and continuously responsible to its conditions? If we have been deceived, then an arbitrary creation was and the original miracle has been repeated with every change since, and you and I, as well as all other living creatures, are here and now confronted with an essentially alien world and the so-called social relation that any of us has to his fellows is the emptiest convention, being as external to the nature of us that live as is the sphere in which we happen to find ourselves living together. Alienate nature and you alienate human nature also; and, although evolution has liked to declare that nature and man are one, the alienation is still quietly retained in a physical, life-endowed or occultly living individual.

In their view of individuality evolutionists seem to me to have offended, and they are probably likely to offend, more than in any of the other ways that have been indicated here. Simply the contradiction is less glaring. Still, in as much as a life-endowed individual logically suggests the perfectionism and the determinism and the dualism which have been considered above, it is superficial to make any invidious comparison. Even to repeat again, a body endowed with the peculiar property of life naturally, logically has a lifeless inorganic environment; and, although some writers may get so far as to deny the existence of an inorganic matter, still if they hold to a life-endowed body they are admitting—by a dark way—the inorganic to their universe.

In the current psychology, which is not less hospitable to evolution than the other branches of science and which has been already referred to here as still recognising a fixed and independent object, this inconsistent view of the individual has shown itself with the assumption that consciousness, as well as life, is a property of individual bodies or that sensation, a special form of consciousness, is the indwelling property of certain distinct organs. Of course just this view of sensation has made necessary the assumption of a "higher" and wholly separate process or faculty, namely, thought,[1] in which the given material of the senses is unified, but the very necessity of such an assumption shows that evolution demands another view of both sensation and thought. For evolution, thought must be positively within sensation, not outside of it, original with it, not an outgrowth, and sensation accordingly must belong to the organic as such instead of being peculiar to any separate organ or to any separate group of organs. Sensation is local only as life is local or as any special functional process, like digestion or walking, is local. And as individual organs are not individually sensitive, so individual bodies are not conscious individually. In short, relationship, original and actual or substantial relationship, is as essential to consciousness as to life; and, to be at once brief and possibly almost practical, the mere consciousness of individuals is in itself the consciousness, the thinking of society. Some time ago I listened to a paper on "The Sixth Sense and other Senses," and the evidence was clear that the old-time limitation of sensation to certain familiar organs was breaking down. The conscious were coming to have dealings with the unconscious. But the writer, like so many who have interested themselves in the same field, got no farther than the recognition of an indefinite number of sense-organs; he was not enough of an evolutionist to escape the supposition that sensation instead of being an organic function is an indwelling property of the sense-organ.

In political science the life-endowed individual, conscious to itself alone, is frequently referred to as a "social atom," a most

[1] Or, more technically, apperception.

curious paradox of course; but in biological science the evolutionist has been not less paradoxical in his efforts first to compose a group or species from his independently living[1] bodies and then to apply to the group the mutability that evolution requires. Any group of individuals, whose life is quite external to its conditions, to its environment, for the sake of unity and integrity must be of a strictly permanent mark or type, all the individuals in so far as members of the group having in common such and such essential characteristics and in so far as varieties possessing differences that are mere accidents to the group. The variety is thus quite outside of the group and it will in fact have to lead two distinct lives, one in the species and the other by itself as variety. Moreover a group will either persist in its peculiar nature or disappear absolutely. The case is the same exactly as under the nativistic or intuitionalistic theory of morals, according to which the moral law must be literally the same for all, incapable of any variation whatsoever, any particular act or way of life being once for all determined as either wholly good or wholly bad, and all the many differences of experience being possibly of interest to prudence but having absolutely no bearing on duty. But evolution, in life generally as in morality, relies on change, on responsible, organic change. The greatest worth of the evolution-hypothesis consists in its allowance for adaptation to differences. Consequently we cannot allow even the suspicion of a separation of species and variety, of unity and difference. The Cambridge graduate, author of a fairly keen examination of Darwin's theory of the transmutation of species,[2] need not have been so surprised at finding Darwin so confused in his mind, or at least in his statement, as to just what species and variety really were and how they were related. In spite of his great idea and of his great work Darwin simply could not save himself from the confusion, because like so many of his followers he tried to think transmutation and evolution into what were, after all is

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[1] Living independently both of each other and of their environment.

[2] *The Darwinian Theory of the Transmutation of Species, Examined by a Graduate of the University of Cambridge.* James Nisbet & Co. London. 1867.

said, only occultly, independently living creatures. A life-endowed individual means a fixed species, and *vice versa;* and Darwin's *Origin of Species* is filled with direct and indirect avowals of life as an indwelling endowment and so of individuality as apart from any active and differentiating relationships. Spontaneous genesis, for example, wholly dependent on the notion that some physical part of nature is what lives, is such an avowal; and natural selection also. Natural selection, for a life-endowed individual with reference to an inorganic alien environment is about as unnatural, as irrational, as arbitrary, as anything could possibly be. If biology only would openly and completely identify individuality, not with any mere physical part, but with an active function or relationship, variety and species would no longer seem opposed in any way and such doctrines as those of spontaneous genesis and natural selection would find out their own meaning.

In all likelihood, in spite of all that has been said, I shall be misunderstood here. I am very far indeed from trying to assist the Cambridge graduate or anybody else to restore the absolutely permanent species to the order of nature. I am certainly not trying to sweep back the waves of modern science. My effort is to criticise evolution, not to refute it; or, if to refute it, to refute it in the only legitimate and effective way, namely, by really accepting it and thinking it through to its very last conclusions. Evolutionists appear to have been wrong only in so far as they have not gone far enough, as they have not taken themselves seriously enough. They have not yet been able to cast aside the integument of older views. Let them but recognise fully and candidly that life is an affair of the universe as an organic whole, having neither an origin heretofore nor a destiny hereafter; let them abandon in all its forms their biological atomism; let them openly and once for all displace spontaneous genesis by life as original, and natural selection by natural expression, and individuals of space and time by individuals of organic relationship; let them do all these things and any others that consistency may exact; and, so soon as they have done all, philosophy—whose conceit must be pardoned—will smile upon them.

But somebody objects here and says that I am hopelessly be-

hind the times, that accredited evolutionists of to-day are really quite free from the bondage to which I am assigning them. Well, I am not so sure. Take, for example, their idea of species and the implied idea of the individual. Professor Farlow of Harvard, who is certainly no conservative, in his recent vice-president's address before the American Scientists, doubts "if any better definition [of species] has ever been invented" than this: "a perennial succession of like individuals."[1] True, Professor Farlow says also that "perennial" and "like" must be taken as very elastic terms, and he even concludes that the species, so defined, is only "an arbitrary and artificial creation to aid in classification of certain facts which have accumulated in the course of time," and recognises in addition that botanists, not to mention other naturalists, are giving up their special interest in origins and turning to "cytology, life-histories, and physiology"; but credible as this is, it is not enough. The philosopher cannot allow the scientist even the shadowy form of the old species. Surely, ghosts are not the proper inhabitants of an honest scientist's world. It is one of the dangers of science, as well as of man's life expressed in other directions, to assume that form and matter are two separable things. Form and matter, however, are one and inseparable, and where a form remains, whether it be only "an arbitrary and artificial creation to aid in classification," or some pedagogical or political or theological tradition, expect to find the substance that went with it remaining also. Who has ever been able to retain the letter without also retaining the spirit? In spite of the persistent Kantianism in modern thought, form and content are one. Moreover, with reference to the present view of species, whatever the avowals of evolutionists may be, they still hold almost if not quite unquestioningly to the notion of characters or qualities as temporary and as limited to par-

[1] See *Science* for Sept. 30, 1898: "The Conception of Species as Affected by Recent Investigations on Fungi" by W. G. Farlow. He says also that the conception of species is "much more flexible than it used to be," meaning, if I understand him, nothing more or at least hardly anything more than that the conception has a greater extension, a wider application, than it used to have. And again: "When a race becomes so constant that it no longer reverts and we cannot tell from what species it came, it is no longer a race but a species."

ticular forms, as when, for example, in referring to certain cases of plant-life Professor Farlow says that "sexuality is the rule in nature, but it should be remembered that it is not universal." Now to deny universality to any character is to fail to understand it and is besides, as chiefly concerning us now, implicitly to avow belief in the old immutable species and unrelated or specially endowed individual. And, furthermore, the evolutionists of the day are retaining the substance of the old inconsistent views in their habit of distinguishing so sharply between chemical and physiological and morphological properties, as when Le Dantec says in his *Evolution individuelle et hérédité*, a piece of work that is quite up to date and that is said by some to be very illuminating, that only chemical characters are hereditary. Why will the evolutionists persist in holding evolution back? Why won't they let evolution evolve?[1]

Well, as a matter of course things are not quite as bad in science as I may seem to be making them. Out of the conditions of science to-day precipitation of a consistent evolution is all but inevitable; and the change should come soon, and the scientists themselves, however blind to their own tendencies—blindness being only another name for caution—should hardly be denied the credit for it. In evidence of what is coming, if I may use still another metaphor, the physical sciences and the biological sciences have already blown their bubbles to such a size and such a thinness that the catastrophe, so familiar to all children, seems bound to ensue. Biology, the science of life, has already admitted to its select company a Development-Mechanics and in many ways has made appeal to Physics and Chemistry, the two chief sciences of a lifeless matter; and physical science on its side, as if preparing for the appeal, has become so thoroughly mathematical that the rapidly vanishing

[1] Here, too, I may extract from between the lines of the above a further statement upon this matter of species. Evolution cannot possibly be free from the notion that the differences and the unity of a species are independent of each other, that the differences are external to the unity and the unity therefore naturally fixed or immutable or only supernaturally changeable, until she frees herself absolutely from any direct or indirect sanction of the inorganic. Immutable species, inorganic environment, and isolated unrelated individuals are only the three sides of what is an equilateral triangle.

spooks of elemental material atoms, occultly endowed with forces, are all that is left behind. No great change, no great shock can be needed to make physical science see that matter lives, and biological science that life is something more than an attached quality, being quite earthly and material; and with the vision, to say no more, the search for the ever minuter, ever escaping "vital unit" will cease, and with the "vital unit" will pass also all individuals, whether in Physics or in Chemistry, in Ethics or in Politics, whose claims to existence and recognition have consisted, first, in physical isolation, and, second, in spontaneous with the sense of arbitrary, suddenly originated activity.

But you will be accusing me of digressing. So let us abandon all attempt at prophecy and return for just a word or two more to our criticism. Criticism, indeed, is the only master of prophecy. In this paper so far I have touched directly only upon what seemed to me to be the fundamental inconsistencies of the current evolution,—which in certain cases were rather implied than overt. To have done more, to have considered any of the incidental doctrines, would have been idle. Besides I make no pretence to familiarity with all the details of the modern formulation of the evolution-hypothesis, my attention turning only to the basal assumptions about life, environment, individuality, and their relations. And yet I might venture to speak very briefly of one of the special controversies of more recent times, namely, the controversy about inheritance. At the risk of displaying my philosopher's ignorance I would suggest that *metaphysically* it makes absolutely no difference whether you hold that acquired characters are inherited, or that inheritance is through the transmission of certain vital, originally endowed units. In the former case you alienate the offspring from its environment by limiting it to conditions not its own, and the alienation means a dualism that evolution cannot honestly entertain; and, in the latter case, by adhering to the purely physical which is the dualistic or pluralistic view of the individual you make life itself virtually an acquired character. Whatever may be true for a scientist, a metaphysician cannot possibly think of life under conditions that limit it to certain narrow bounds of nature's phe-

nomena without also thinking of it as something that has come into being, that has at some time entered into that to which it is ascribed. To put the whole case somewhat differently, with such light as I have I cannot see that either the Neo-Lamarckians or the Neo-Darwinians get beyond a literal inheritance, that is to say, a transmission to the offspring of precisely what was in the parent, and it is very certain that literal inheritance, whether complete or only partial, whether only of a general character or of a special character, and evolution, which is so dependent on transmutation or adaptation or differentiation, cannot stand together. And, as for the germ-plasm doctrine of immortal units, this must come and go with the units themselves for the simple reason—it is simple, is it not?—that a unit is not what lives any more than a brain-cell is what thinks or than an atom or molecule or even a planet is what moves.

And now as I conclude you may wish to know more positively, more directly, just what changes a consistent evolution really makes in the current evolution. The chief changes, already mentioned, are three: final and unquestioning rejection of an inorganic matter, liberation complete and absolute from a fixed environment, and whole-hearted adoption of the organic in place of the physically isolated individual. But besides these changes in doctrine there are others in standpoint and method, which have a very practical value and ought to be mentioned. So, asking you to remember that in reality the current evolution is to be found wherever the historical method is used, I shall conclude this paper with a suggestion or two, being necessarily exceedingly brief and general.

If the foregoing criticism has any value, the present with its whole content rather than a dead past or an unborn future must be looked upon as the only true cause of activity. Why, there is no dead past, and there is no unborn future. Those strange questions of mere origin and mere destiny not only are losing their interest but also ought to lose it. The action of any creature, great or small, cannot be thought to be because something, which no longer is, was once, or because something, which not yet is, is to be some time, but only because something is now; or, otherwise put, the

cause of action cannot be made external to action itself. For a *consistent* evolution the present, being all-containing, is all-sufficient. Nothing has been outgrown in the sense of left behind and nothing can be acquired, any agent's responsibility being always fully to what is and only to what is. No longer can we think of individuals in a dead past as culpable for not doing or as creditable for doing what only those who live now could ever even think of doing. In history, or in the more general evolution of life, the present was never the motive of the past, as so many would have it; the past never undertook to produce the present; and, accordingly, judgments should never be made on any such assumptions. Not the bygone past but what we might call the contemporary past, the past as a law recognised and heeded now, has made the present. This law *is* rather than *was*. Really I do not know which is the more serious offence, from the standpoint of a consistent evolution, for a biologist to suppose that an animal spontaneously reacts on an environment, as if the creature's past had somehow endowed it with a peculiar and irresponsible power over its present, or for a historian to treat particular men or particular nations as the creators of social or political changes, but certain it is that creation is not true history nor spontaneous reaction true evolution. For animals and for men, that is to say, for all animals, who really have quite enough to do to express the life in which at any moment they find themselves, the only effective past is the past that is a related part of the present.[1]

And, strangely enough, both biologists and historians, without seeming to appreciate fully just what they have been doing, have for some time been bringing the effective past into the present. They have, for example, appealed to mechanical or physical law or to so-called natural conditions, which are obviously quite indifferent to any of the distinctions of time. Is it not John Fiske who would have the trade-winds share the discovery of America with Columbus? But the trade-winds are blowing very faithfully to-day.

[1] In an article, "Time as a Datum of History," in the current number of the *Philosophical Review*, I have tried to give a careful elaboration of the ideas in these concluding paragraphs.

The older history, the older evolution, is going to have a hard time when these mechanicalistic, naturalistic explanations have fully succeeded to the place of arbitrary acts as the sources of events, for then, with timeless laws to appeal to, the fiction of the past as an antecedent cause of the present will be once for all formally and materially dispelled. Under a consistent evolution, under a history true to its own presuppositions, the timeless laws of the present can be the only signs of a creative or effective past, and this simply because the past to which they point is a real part, a real phase, of the present.

Many object and say that to explain life mechanically or physically and history naturalistically is to deny vital spontaneity and human freedom, but exactly the reverse is the truth. Just for the sake of spontaneity and freedom it is necessary that creatures of the past should be seen to have lived, not lawlessly, but in the very laws to which the living are responsible, upon which the freedom of the living is established. Need I be truistic and say that life and freedom are affairs of the present, not of the past? With regard to such as have gone before we cannot but say, unless we would destroy our own foundations, our own hopes, rather that the law which still is was than that they were. The law of the past as the motive of the present or the necessity of the past as the opportunity of the present is perhaps as good a formula for a truly evolutional development as can be given. Whatever else may be said of it, it certainly does away with the determinism that would make of the past an antecedent cause. Life is quite adequately supplied with responsibilities without being bound by any external conditions or determinations.

But it was suggested above that on the basis of our criticism neither the dead past nor the unreal or unborn future but only the present could be treated as a real cause of activity, and I have to say just a word of the relation of the future to the activity of us that live. Whatever controlling ideal the future has for us all must be here and now active among us. As has been said at least in substance if not in words more than once, "There is no opportunity like necessity; only what is can be." The future can be no inspir-

ing but distant dream; a consistent evolution can know it only as a present living reality, present in the very conditions that are and alive in whatever lives. The effective future, as well as the effective past, is actually and concretely present. The past is perhaps the law, the necessity; the future is the motive or impulse or freedom.

And here, as a last word, although I have no thought of interfering with anybody's theology, I cannot help saying, with a philosopher's license, that as evolution becomes honest enough to think of life and individuality as not inherent in separate physical bodies and of the future however remote as already alive in the present, a concept of immortality satisfactory at once to science and to faith will be all but laid open to us.

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EVOLUTION AND CONSCIOUSNESS.

EVOLUTION is now generally accepted by thinkers as the most scientific explanation of the processes of life in general; and whatever criticisms may apply to this or that phase of evolutionary belief, most of those whose abilities and training stamp any value upon their opinions regard Lamarck, Darwin, Wallace, Spencer, and some of their followers in scientific research as among the world's greatest discoverers and benefactors. Yet the details of the doctrine have not all been arranged, and all the accessible facts of experience have not yet been brought into harmony with the general conception. A great task still remains to be accomplished before the field is cleared of contradictions, many of which are our inheritance from past ages of thought in realms other than those of physical research. Theories are still held in metaphysics and philosophy, notably in psychology, which are irreconcilable with those derived from the observed facts of evolutionary science.

Confessedly one of the most important and difficult problems still unsettled is that of the origin, nature, and place of Consciousness. In using this term I am embarrassed by the difficulty due to the lack of precision with which it is employed. Perhaps the most comprehensive definition is: "The mind's knowledge of its own state or acts;" or, in the language of Hamilton, "Consciousness is the recognition by the mind or 'ego' of its acts and affections; in other words, the affirmation that certain modifications are known by me, and that these modifications are mine." Another definition is: "Immediate knowledge of any object whatever." Doubtless one word, *awareness*, will express the substance of these

definitions. I desire to use the word consciousness to signify that complex of qualities, activities, and relations which constitute the "ego," which make me myself and not another,—in a word, I mean by it the sense of Selfhood.

When it is asked, What is conscious? the answer is, I am conscious. But what am I? My body evidently is not myself, it cannot reason, love, hate, aspire, worship; I am—a Soul. Whence, then, came I? Concerning the origin of the body there is no question; but the mind, the soul, is, upon the whole, regarded in the light of a mysterious guest, for whose accommodation, some say, for whose imprisonment, say others, the body is provided.

I have neither occasion nor space to do more than merely glance at a few of the theories concerning the soul. The so-called Indian philosophy holds the "essential sameness of individual souls, emanating all alike from the ultimate spiritual essence 'as sparks issue from the fire,' and destined to return thither." According to the Vedānta, there is but one substance or reality, "ingenerable, immutable, incorruptible, eternal, and this is the supreme spirit. The individual soul is personal only in fictitious semblance, and is in truth impersonal, one with the undifferenced self or Brahman." One of the grandest contributions of thought on this theme is doubtless that of Buddhism. It "denies that the word soul is anything more than a convenient expression, or that it has any counterpart in fact. Birth is not rebirth but new birth. Transmigration of soul becomes a transfer of karma. As one generation dies and gives way to another—the heir of the consequences of all its vices and all its virtues, the exact result of pre-existing causes—so each individual in the long chain of life inherits all of good or evil that all its predecessors have done or been, and takes up the struggle towards enlightenment precisely where they have left it. One lamp is lighted at another; the second flame differs from the first, to which it owes its existence. A seed grows into a tree and produces a seed from which arises another tree different from the first, though resulting from it." Plato represents Socrates in his last moments as saying: "If the dead came from the living, and not the living from the dead, the universe would ultimately be con-

sumed in death." He says: "What is recollected must be previously known. . . . Therefore, if ideals be not vain, our souls must have existed before birth, and will have continued existence after death."

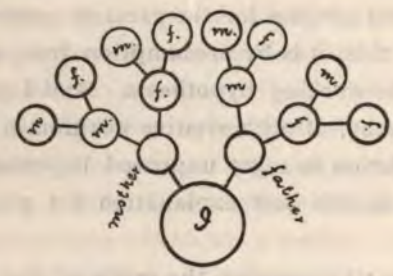
The so-called materialistic theory of the soul is, that it is the resultant of the sum of the physical activities, related to the organism as the rainbow is to the drops of water, and like it, ceasing to exist when the organism fails.

Now, it is evident that a true theory of Consciousness must harmonise with the physical facts of evolutionary science; and the materialistic view in its various phases is fraught with so many contradictions that it by no means offers an explanation of the progress of the race. But human progress is a fact which must be accounted for, and since mind or soul is the chief factor in this progress, a correct theory is of the first importance. That which I here offer I have ventured to call the Composite Consciousness.

It is not incumbent upon any theory to demonstrate its authority; all that is required to entitle it to a place in a scientific system is, that it shall best account for the greatest number of facts; if it succeed in doing this, it is by presumption true, and is entitled to rank as a scientific working hypothesis. And I need only remind the reader that many, of authoritative position in the world of science, regard evolution as a yet unproved hypothesis, who still accept the doctrine as the best explanation yet given of the world-process.

I said, above, "Concerning the origin of the body there is no question." I mean by this, of course, the individual organism with which we are at present acquainted. I make here no attempt to speculate concerning the possible evolution of the human form from those of lower rank. The individual is physically derived from his ancestors; without two previous organisms, the third is impossible. Thus each individual is, physically, a composite, as it were, of all who have preceded him. We have all seen composite photographs, the art of making which was recently discovered. A notable instance is that of Gladstone's Cabinet, which appeared in many of the leading magazines. It affords a good illustration of

my meaning. As in this picture a new face appears, presenting a union of the characteristics of all the faces, so combined and blended as to be like and yet unlike each, so each physical body is a meeting ground, or a focal point, for all the converging ancestral elements, unlike them all, yet having impressed upon it their principal characteristics. Thus traits of gesture, facial expression, gait, tones of voice, etc., are faithfully repeated from generation to generation. Further, it is well known that these physical traits are indicative of mental dispositions, so that many profess to read character by these external, physical signs. Red hair is popularly supposed to accompany a fiery temper; square jaws indicate firmness, thick lips sensuality, and so on. Thus it would appear reasonable to view the mind, the consciousness, that which constitutes personality, as also a composite, formed of all the ancestral personalities. In what other way shall we account for inherited genius, as, for example, in the case of Sebastian Bach and his descendants? My thought will be made perfectly clear by reference to the following simple diagram.



Let the lowest and largest circle stand for a given personality. Obviously its existence depends on that of the father and mother, and theirs in turn upon that of their progenitors, and so on. Now, to assume that the soul or mind is imported into the body, is to deny the well known fact that it is the mind that imparts its seal to the physical organism, rather than the reverse, is to deny the inheritance of mental idiosyncrasies, and to involve the whole subject in more and greater contradictions than confront us on this hypothesis.

One of the most striking confirmations of this theory is afforded

by the *memories* that haunt many people. I call them memories, but the term is not quite accurate, since these impressions usually lack the clearness of the ordinary memories of life. They are, rather, experiences that seem to float in a region just the other side of memory, and their subjects are tantalised in vain efforts to grasp their meaning. I remember reading, some years ago, an experience, the details of which I have unfortunately forgotten, but which was strikingly in point. It was that of a gentleman of Welsh descent, who, I believe, had never been in Wales. For years he had been haunted by the vague reminiscence of a tune, wild and strange, yet which he could not recollect ever having heard. One day, while crossing the ocean, he heard a company of Welsh sailors singing; he drew near, and at once recognised the air, which no one had ever sung to him, and yet which had been, in a dim, formless way, a part of his consciousness. It was an old Welsh melody, I think a battle song. A friend of mine, a gentleman of great intellectual abilities and highly educated, told me that he never saw the moon, very early in the morning, hanging low in a gray sky, without the feeling that, long, long ago, he had been present, under just such an aspect of sky and planet, at an event that decided the fate of nations. Another case, well known to me, is that of a person who, when a child, was so beset by dim reminiscencies of a former state of luxury and power, that he finally conceived the possibility of his having been born in such a condition, and adopted by those whom he called father and mother, and who by no means lived in affluence. He brooded over this fancy until, able to carry his secret no longer, he one day asked his mother if he was really her child. Her affirmative answer at once dispelled his little theory, but the dream remained, and still haunts him, though he is now a man in middle life. My friend assures me that he can at will recall a vision of a spacious apartment with what impress him as lordly and luxurious furnishings. It is dusk, no lamps or candles are lighted, and he sits there alone. To his right, against the wall, stands a lofty sideboard of some antique design, on which are ranged pieces of plate. In this vision, or reminiscence, or whatever it be, he feels himself the proprietor of

the seen and *felt* magnificence, or *the son of its proprietor*. He has only to make a want known to have it immediately ministered to by some attendant who waits in an adjoining apartment.

I relate this circumstance at some length, on account of what seems to me its scientific value as corroborative of the theory of consciousness here presented. For this gentleman, though never having, in his proper person, seen such an apartment, furnished in the manner described, and never having exercised the authority of which he felt himself possessed in the reminiscence, is actually a descendant of a long line of English nobles, and his tastes, although, as he tells me, he has never had the means to gratify them fully, are those which we are accustomed to associate with aristocracy.

I am, because my ancestors were; and I am what I am, because of what they were. Memories of the kind referred to seem to be *my* memories, because they are a part of *my* consciousness. If some forefather took part in a great battle, and if, according to the hypothesis, this strong impression is in a measure reproduced in his descendants, though only as a floating sentiment, what more natural than that I should conceive of myself as having been, in some mysterious manner an actor in affairs which in no way concern my present existence? That *all* the experience, all the mental life, of my ancestors is not represented in my consciousness may be explained by *cancellation*, by the stronger overlying or obliterating the weaker, by something akin to chemical attraction and repulsion. Obviously, only the master impressions can survive as memories, more or less distinct, while the rest have entered into the warp and woof of personality, manifesting themselves as habits, tendencies, acts, judgments, modes of thought, points of view unconsciously ruling the life.

The theory of the composite consciousness accounts for the growth of the race in civilisation and power. It explains how man can benefit by the gains of the past. This is exactly expressed in the Buddhistic statement that "Each individual in the long chain of life inherits all of good or evil that all its predecessors have done or been, and takes up the struggle towards enlightenment precisely

where they have left it. One lamp is lighted at another." There is undoubtedly such a thing as a Race Memory due to other sources than the mere repetition by father to son of old legends, such as those relating to ancient *habitats* and migrations, and striking national or tribal vicissitudes. This is explicable on no other basis. The solidarity of the race becomes intelligible from this point of view, and the doctrine of evolution gains new breadth and beauty.

It is noteworthy that glimpses of this insight mark several of the theories of the soul that have gained the acceptance of large numbers of men. It is as though the Soul were, so to speak, half conscious of the real method of her earthly pilgrimage. A dim apprehension of this truth lurks at the bottom of Comte's philosophy, which asserts, in lieu of individual immortality, the immortality of the race, a thought-immortality, toward which each individual contributes his share.

The only philosophical objection to this theory of consciousness which, to my mind, deserves serious notice is the asserted *simplicity* of the mind or soul. The old view was that the mind was a group of faculties of which one might be active, while the others were quiescent. Where we use the general term intellect, our forefathers spoke of "intellects." But now the mind is viewed as a unit. When we will, the whole mind wills; when we remember, the whole mind remembers.

But recent studies in psychology have taught us that, while the old conception is untenable, the newer one is far from being correct. The mind is not a unit in the sense which many hold. As Dr. Carus says in *The Monist* (January, 1897): "The unity of the soul has ceased to be a monad, an atomistic unity, and is recognised as a unification. The personality of a man is a peculiar idiosyncrasy of psychic forms, a system of sensations, impulses, and motor ideas, but it is not a monad, not a distinct entity, not a separate unit. In a word, there is no soul-entity, or soul-substance, or soul-substratum, that is possessed of sensations, impulses, and motor ideas; but all the sensations, impulses, and motor ideas of a man are themselves part and parcel of his soul. Mr. Hegeler expresses it by saying: 'I have not ideas, but I am ideas.'" Buddha

taught, as quoted by Dr. Carus in the number of *The Monist* referred to, that "Compounds have no existence outside their parts, and man, like other things, animals, plants, chariots, worlds, etc. is a compound. Self denotes the whole man."

Such men as Ribot and Binet have abundantly demonstrated the fact that consciousness is not a unitary phenomenon, but an affair of astonishingly complex nature. It is well known that aber rations of the physical personality, or the sense of physical sameness are often met with. The patient believes that he has lost a limb, or that he is made of glass, or that some other extraordinary change has taken place in his physical organism. Ribot says (*The Diseases of Personality*): "Some subjects assert that they no longer have teeth, mouth, stomach, intestines, brain: which can only be explained by a suppression or alteration of the internal sensations that exist in the normal state and contribute to constitute the notion of the physical ego." M. Ribot also mentions a form of hallucination in which the patient insists that "he has no body at all,—he is dead." "The physician Baudelocque, during the last period of his life, lost all consciousness of the existence of his body: he maintained he no longer possessed head, arms, etc."

No one disputes the complex nature of the physical organism, but the conscious "ego" is also liable to experiences or states wholly inexplicable on any other theory than that of composite consciousness. For example, there is the famous case, related by M. Ribot in the work above referred to, of a soldier who had been seriously wounded at the battle of Austerlitz. "When asked about his condition, he would reply: 'You want to know how old Lambert is? He is dead; he was carried off by a cannon ball. What you see here is not he, but a poor machine that they have made, in imitation of him; you ought to ask them to make another.' In speaking of himself, he never said 'I,' but 'that thing.'"

Here was not only the loss of the sense of physical identity, but also that of the true "self-identity." Indeed, cases are on record which prove conclusively that the personality is made up of a great number of unstable elements. At any moment a person may cease to be "himself," and become another. One of the most re-

markable cases of this kind which has come under my notice, is that of Mary Reynolds, as related in a booklet entitled *The Watseka Wonder*. The account is republished from *Harper's Magazine* for May, 1860. I refer my readers to it, as it is too long to introduce here. Another case, quoted by Ribot from Billod, is that of a lunatic in the asylum at Vanves, who, "every eighteen months about, would let his beard grow and present himself, altered in dress and manners, to the whole house as a lieutenant of artillery, named Nabon, recently arrived from Africa, to act as a substitute for his brother. He would say, that before leaving, his brother had given him all the requisite information about every one; and at his arrival he would ask and obtain the honor of being introduced to each person. The patient would then remain for several months in a state of marked exaltation, adapting his whole conduct to his new individuality. At the expiration of a certain time he would announce the return of his brother, who, as he said, was in the village and would come to replace him. Whereupon he would have his beard shaved off, change his dress and manner, and resume his real name. But he would then exhibit a marked expression of melancholy, walking along slowly, silent, and alone, usually reading the *Imitation of Jesus Christ* or the *Fathers of the Church*. In this mental state—a lucid one, perhaps, but one that I am far from considering normal—he would remain until the return of the imaginary Lieutenant Nabon."

M. Ribot also relates (*The Diseases of Personality*, p. 72) a most interesting and instructive case, that of a young man who successively exhibited six different states of consciousness. The narrative is much too long to insert here.

At the risk of making this paper appear but a series of quotations, I must employ the language of Professor Ribot when he says (*The Diseases of Personality*, p. 69): "Our ego at different epochs is very different: according to age, the various duties and events of life, and the excitations of the moment, certain complexes of ideas, at a given moment representing the ego, are more strongly developed than the others and take the first place. We become another and are yet the same. My ego as a physician, as a scien-

tist, my sensual ego, my moral ego, etc., that is, the complexes of ideas, inclinations, and directions of the will designated by these terms, may at a given moment enter into mutual combat and repel each other. The consequence of this state of things would be, not only inconsistency and division of thought and will, but also a complete absence of energy for each of these isolated phases of the ego, if in all these spheres there was not a more or less clear repetition for consciousness of some of these fundamental directions. The orator, master of his words, who while speaking is his own critic, the actor watching himself play, the psychologist studying himself, are additional examples of this normal division of the ego."

Thus we see that the theory commonly held at present—which regards the mind as a unit—must be abandoned as no longer scientific, in view of the facts presented above.

But another objection remains to be noticed, which, though not perhaps deserving the rank of scientific, yet will be urged by many on religious grounds. It will be said: Wherein does the theory of Composite Consciousness differ from that of materialism, which holds that the soul is the mere resultant of the activities of the physical organism, and that when these activities cease the manifestation called "soul" must necessarily cease also? What becomes of the doctrine of immortality to which the great majority of the race cling with such tenacity? Does not the Scripture say that "God breathed into man's nostrils the breath of life; and man became a living soul"? Surely, what was "breathed into" the organism was not the product of that organism's interactions!

To my mind the theory here maintained is as far from being "materialistic" in the sense intended by this objection as materialism is from spiritualism. But it serves, as no other theory with which I am acquainted can, to harmonise the undoubted facts which form the basis of the materialistic view, with the facts, equally undoubted, which are at the foundation of the opposite theory of life.

The bane of specialism is the tendency to fix the attention upon facts in the special field of investigation, to the exclusion of

facts whose existence is fully demonstrated in other regions of research. The votaries of physical science often arrogate the name science to the results of their favorite labors, forgetful of the rights of others who seek reality from other points of view. Science means nothing but classified knowledge; and a system of classified facts in regard to ideas is as truly science, as classified facts in regard to rocks, or bones, or gases. Observed facts of mind cannot contradict observed facts of therapeutics; mathematics is as truly a science as mechanics,—indeed, without the former the latter is impossible. The criterion of truth is that it never contradicts itself. When two "sciences" are in any degree contradictory, either the supposed facts are not facts, or they have been wrongly interpreted.

It will be disputed by no one that, whatever the differences between any two given personalities, all men are under the sway of fixed mental laws; no experience to which man is subject can abrogate their decrees. Truth never changes to Falsehood. The intuitions are always the incorruptible court of final appeal. On the axioms of mind is erected that purely ideal science called *par excellence* an exact science, mathematics, to whose laws the coarsest and clumsiest of material structures as well as the most abstract systems of thought must conform. These laws are the same for all times and for all classes of minds. Ten thousand men in Athens in the days of Pericles was not a larger or smaller number than ten thousand men in Boston in the year 1897. Edison, with all his genius, the crown and glory of evolution in the field of invention, cannot force an electrical discharge of two thousand volts from an instrument whose resistance is only equal to one thousand. And it is to be noted that when a "philosopher" seeks to deny the validity and universality of the intuition, he does so by endeavoring to appeal to some universal and unquestionable standard of truth!

All men know, then, whether they have consciously separated this knowledge into its formal elements or not, that a thing and its contradictory cannot both be true; all men, likewise, believe in, or hope for, *or think about*, Immortality, the existence of a Supreme

Being; all races have Religion, in support of which they are willing, if need arise, to forego all merely material, transient gains.

These beliefs, then, are proofs of a Consciousness common to the race; in other words, they inhere in what may be called the Race Personality. They are beyond experience, yet are the standards by which experience is tested and its validity determined. Does not this point to the fact that the life of man is a manifestation of the Eternal Reason, that Life which was in the beginning, is now and ever shall be—that man's true ancestry is Divine? We are the sons of our fathers and mothers; was the Apostle John guilty of an unscientific statement when he declared: "Now are we the Sons of God?" For progress is impossible, for the individual or the race, without a norm of experience, an unvarying standard by reference to which all the facts of experience are classified and duly related, so that life is not a mere chaos of discordant happenings. This norm cannot be the result of experience any more than the axiom can be the result of mathematical practice; it must precede the conscious experience as the soil must precede the plant which it nourishes.

The problem of self-consciousness as distinguished from that deeper consciousness shared by all the race, receives new light from the foregoing considerations. Jean Paul somewhere speaks of the moment when, as a child, standing near his father's woodpile, the revelation suddenly flashed upon him, "I am an I!" Heretofore, without self-consciousness, he had shared in the universal life; but now the experiences of his few years, like volcanic tendencies silently gathering force beneath the surface, in one instant thrust up the little island of "self" from the depths of being, and henceforth he goes his way conscious of a Personality which differentiates him from all others. It would be instructive to gather data concerning the birth of the self-idea in young children, but unfortunately all are not wonderful geniuses like Jean Paul. Doubtless with most of us the self-cousciousness steals upon us as dawn steals upon the earth,—there is no precise moment when we can say, Now it is day.

Man arrives at self-consciousness through the reaction of the

external world, and thus conceives of himself as finite by contrast with his consciousness of the *All*, the Infinite. Thus man carries within himself the polar opposites of being. He can reason to the infinite only from his consciousness of the finite, and to the finite only from his consciousness of the Infinite. Another fact, authenticated by countless instances, possesses the greatest corroborative value in this connexion: In the great crises of life when the whole attention is given to an instant experience either of overwhelming danger, grief, or joy, one does not watch himself, he is unconscious of himself. Familiar illustrations of this truth are afforded by soldiers in battle, unaware of their wounds; by ordinarily feeble women performing miracles of strength and daring in the effort to defend or rescue their children from great peril; by the orator, rising, in some tremendous emergency, above the plane where, according to M. Ribot in the language quoted above, he is "master of his words and while speaking is his own critic," but rather is mastered by his ideas, and, in an exaltation akin to prophetic frenzy, identifies himself with the substance of his message, or, in the terminology of so-called Occultism, "*becomes it*,"—these and many other instances which could be given prove that indeed the personal consciousness is but a bubble floating on the tide of Being, and liable, at any moment of strong emotion, to be swept into nothingness. I cannot here forbear to allude to the well-known fact that in great popular uprisings large bodies of men "lose themselves" and become animated by a common impulse, so that a thousand persons, any one of whom is a comparatively insignificant force, united by a common idea and purpose, become a terrible Energy, resistless as an avalanche, drawing their power from the common source, Omnipotent Being.

The Race Consciousness, then, is an undoubted fact,—at bottom, and only awaiting some impulse which shall seize, not a thousand men nor a million, but all the dwellers on the planet, One Consciousness for all men, swallowing up the partial sense of selfhood as the ocean swallows up the wave. This is the basis of a true science of Sociology. I cannot afford to injure another, for in so doing I am injuring myself. I am bound to help all others, for

I am thus helping myself. And when this conception becomes general, evolution will receive a mighty impulse, and its fruits shall appear from seeds that have been planted long ago,—how long, who can tell?—in the deep soil of Consciousness.

No one, then, need fear for the doctrine of Immortality, since man is a manifestation of the Endless Life. As to the manner of immortality, of course we cannot now know; but if Evolution, which is the method of the Divine procedure, has brought us thus far on the road, we surely shall not be so illogical as to fear that in the future we shall have or be less than at present! If, indeed, the protoplasm evolved into Man, shall man dread lest evolution shall at last render him inferior to the protoplasm! No; if the deep instincts of the race deceive us, if the intuitions, if the axioms by virtue of which only we say that *we know*, delude us, how dare we trust that we have discovered any abiding principles to guide even our little daily personal lives? How dare we say of any system of induction or deduction, This is Science? The world, then, is not an orderly evolution, but a chaos, rushing in a mighty storm to endless night. Nay, the night has already fallen, and we are but spectres, groping among the fantastic apparitions of a baseless Dream!

In closing, let me advert to the theory which holds that the physical environment reacts upon man, so that geographical, climatic, and other variations tend to produce general race characteristics,—variations in temperament and faculty. Dwellers by the sea and dwellers in the desert present totally different features to the study of the ethnologist. Mountaineers and inhabitants of the plain; denizens of the tropics and those who support life amid polar snows; the cultivated products of European and American society and the wretched creatures who freeze and starve in Terra del Fuego; Gladstone and the African pigmy, represent types almost as divergent as those afforded by animals of different species. Do we not in these facts find a hint, in strict scientific accordance with the doctrine of Evolution, that the material universe is also possessed of something, not "Consciousness" in the ordinary acceptation of the term, perhaps, but at least a dim sort of psychic life,

the same in kind, though infinitely less in degree, as that of brute and man? One of the great philosophies of the Orient teaches that the same life resides in the ant and in the angel; and the poets, as, for instance, George Herbert, who says: "Man is in little all the sphere," and Tennyson, who sings:

> "Flower in the crannied wall,
> I pluck you out of the crannies,—
> Hold you here in my hand, root and all,
> Little flower. But if I could understand
> What you are, root and all and all in all,
> I should know what God and man is,"

—these who represent the deepest insight into nature and life, are full of the thought that the universe is not cold and dead, but is, with man, a sign and symbol of the Life Eternal. And the language of St. Paul is seen to be but a scientific utterance when he says: "The earnest expectation of the creation waiteth for the revealing of the sons of God. For the creation was subjected to vanity, not of its own will, but by reason of him who subjected it, in hope that the creation itself also shall be delivered from the bondage of corruption into the liberty of the glory of the children of God."

Already, at the touch of inventive skill, many a casket of apparently gross matter has been opened to liberate a mighty genie who evermore assists the upward progress of man. It is as though the veriest clod or jagged rock or floating cloud bore within its bosom a sleeping soul ready to awake to consciousness at the call of Mind,—as though many a Beast were awaiting the kiss of beautiful Intellect to arise, with the grace and dignity of a prince, clad in royal robes.

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A FEW HINTS ON THE TREATMENT OF CHILDREN.

DON'T SAY DON'T.

THERE are two interpretations of the doctrine of the Fall and the scheme of salvation that was held among the school men of mediæval Christianity. One regards the fall of man as a break in God's plan, while the other one represents the view that it was God's intention to let man pass through sin to salvation; for without sin man would never have acquired the knowledge of good and evil, which forms the climax of his similarity to God. Adherents of the former view belonged to the school of Nominalists while the latter showed an inclination toward Realism. The former regarded our present world as one particular anomalous accident, and would at the same time insist on the dogma of the cosmoscentricity of the earth, which means that the earth is the stage on which alone God became flesh and revealed himself in Christ. All the other planets, the sun and the moon, and all the fixed stars, exist simply for the sake of the earth as lights that might serve to make time-measurements for human purposes; and on earth man was created to be tempted, and when he had fallen God would set all the armies of angels in motion and come down upon earth himself to redeem him from perdition. This is the view of those who regard every experience of theirs as a particular case, and who see in universals no truly universal features but mere "names" (in Latin *nomina*), a definition from which the name "nominalism" has been derived. Their adversaries, the Realists, were inclined to look upon every particular case as an instance of universal law, and thus

they were inclined to regard man's fall not as an accident, but as a necessity. They argued that man fell because God wanted him to fall. And how could the good tidings of the God-man have been possible if man had not to rise from a lower state to a higher, if he had been and remained from the beginning perfect and without sin? How could there have been any worth in his character if he simply were good because he was created good? No, man had to work out his salvation for himself, he had to establish his own good character, and that feature in man which accomplished his salvation is God himself! Thus, according to the philosophy of the realists, the earth would be a typical case for any possible world on which life develops, and the consistent conclusion would be to say that the same events naturally and necessarily take place in other worlds. On all of them we should find sinners, on all of them error and evil, yet at the same time on all of them God would appear in the flesh and would teach men that self-sacrificing love is the way of salvation. And further, what would Christ or Saviour mean but an actualisation of this self-sacrificing love?

Whatever these two schools may portend, this much is sure: when, according to the legend told in the first chapter of Genesis, the Lord put the man he had created in the Garden of Eden, and said to him with regard to the tree of the knowledge of good and evil, "Thou shalt not eat of it," the man, as soon as left at liberty to do as he pleased, would not and could not fail to disobey the command.

As the story stands God must have had the intention to make man fall. Otherwise the Ophites, the Syrian Gnostics who believed in the divinity of the serpent, would have been right when they declared that Jahveh was an inferior God, who, himself a slave of passions, like wrath, jealousy, vengeance, etc., wanted to keep man ignorant. The highest God, however, the God of love, mercy, and wisdom, sent the serpent as the first messenger of the gnosis to aspire for knowledge and prepare mankind for the arrival of Christ.

If you have a child whom you want to perform a certain act on its own accord, but not at your request, you need only tell him "Do not do it," and he will be sure to do it. You may by force or

by fear prevent a boy from being disobedient, but you cannot prevent him from feeling the itching in his fingers to do what is forbidden. All the various injunctions so freely given to children are so many temptations to become disobedient.

A little party of children had thrown several boxes of blocks down stairs, which would have given the nurse a good deal of trouble to pick up. They enjoyed the joke greatly, but when a waggish uncle told them that for a punishment the blocks should remain down stairs and that no one should be allowed to bring them up again, the little urchins started at once to carry every block up, and the joy of being disobedient beamed in their eyes.

Hence the lesson, Don't say "don't" to your children. Do not forbid. Do not lead them into the temptation to become disobedient; in other words, respect their liberty and allow them to act foolishly, if they prefer to do so at their own risk.

But the objection may be made: "Children must be educated, and education consists precisely in teaching them what not to do." That is quite true. But the method of teaching them what they should not do ought not to consist in interdictions.

If you do not want the baby to walk down stairs because he will hurt himself and is liable to fall, let him try, and let him by his own experience find that he runs a risk when going down. Tell him he will fall, but do not forbid him: Don't say "don't." When approaching the stairs for the first time, watch over him so that he does not do himself serious harm, but let him experience the fear of falling, and warn him that he will hurt himself. If he disregards the warning, it is better for him to be sufficiently frightened by a fall to remember it.

If a child approaches the stove or the fire-place, warn him in the same way; tell him "hot," "hot," and if the child does not mind, let him burn himself a little. The nurse's business is simply to see to it that he does not meet with a serious accident, not to hinder him from making unpleasant but valuable experiences. You will find that children who are informed about the evil consequences of certain actions will mind the warning much better than the children who are forbidden to eat an apple for no reason what-

ever. That apple will appear "pleasant to the sight and good for food," more so than any other fruit that may be around.

When children want more sweetmeats, more strawberry shortcake, or more ice cream than is good for them, give them a fair warning. Tell them, "I should like to eat more of it myself, but I believe I shall ruin my stomach and be sick if I do; therefore I don't." If the children are strong enough and can stand a disordered stomach, it may be advisable to let them once or twice take more and let them find out themselves what an abused stomach means. But when a child falls sick and when its stomach revolts, the best plan is to sit by his bedside and help him pass in review all the things he has eaten on the previous day, and then to say to him without reproach: "I believe you ate too much ice cream," or whatever it may have been, "and I would not eat so much again. It is unpleasant to be sick, and it is after all the same taste whether you eat one or two dishes."

Sickness is a good teacher of self-control in eating, but parents must improve on the occasion and help the child to discover the cause of its indisposition.

You cannot educate children by punishments; you must make them, so far as possible, feel the evil results of their actions, and the insight into the causation of good and evil will exercise a better and more educational influence than the fear of the rod or the sting of bitter reproaches.

The child will be an echo of your behavior. Scolding makes him a scold, and severity renders him resentful.

THE TREATMENT OF A BAD BOY.

There is a peculiar difficulty in treating children when they become naughty. They scream, they howl, and become obstinate to all moralising. Their bad temper becomes part of themselves, and to relent naturally appears to them a self-surrender.

What is to be done in such a case? Shall educators break the will of the child as is often proposed, or shall they yield and let him have his will? Neither seems to be practical, for, on the one hand, instead of breaking the will we ought to strengthen it,

and, on the other hand, instead of yielding to his will, we ought to lead it and direct it in its tendencies. Will in itself is neither good nor bad; and strength of will is rather a virtue than a vice, but the goodness of a will depends on the aim toward which it tends.

A child's soul, accordingly should be treated as what it naturally is, a living commonwealth of various and frequently contradictory tendencies. And in doing so, it is advisable to identify those tendencies that are to be cherished and strengthened with the child's self, but to brand those which we wish to remove as foreign elements that are to be discarded. They are like the injurious offshoots of fruit trees which have to be pruned. If the naughtiness of the child be treated as something that he is possessed of, as a mental poison that he has to expel from his mental system, as demons and devils such as Jesus cast out according to the Gospel stories: educators will far more easily regain the good-will of their little rebel if they allow him to capitulate without suffering a humiliation.

Here a combination of two principles appears to be of advantage: first, the diverting of the attention of the child from the cause that produced his ill behavior, and secondly, the personifying his rudeness with a bad boy that has entered his little self. Address the child, saying: "There is a bad little boy in you, come quick, let us cast him out." And then begin a chase after the imagined bad boy the pursuit will give joy to the child who will soon understand the joke and with shining eyes delightedly help to expel the little devil whom he learns to consider as the cause of his bad behavior.

Afterwards he will learn no longer to admit the bad boy, but to expel him before he is able to do any mischief. At any rate he will be able to distinguish between himself and the evil that might originate in him, and will thus preserve his self-esteem and there will be no need of breaking his will in the interest of good behavior.

The methods of casting out bad boys may be changed as physicians may employ various medicines for attaining the same effect. Sometimes it is advisable to pull out the bad boy as the

dentist might pull a tooth, which may be done with a corkscrew after the manner of uncorking a bottle. Another practical method which can be highly recommended is the employment of pincers. The little fellow must open his mouth for inspection, for the bad boy is supposed to sit inside, in the place whence the shrieks proceed. The opening of the mouth will of course stop further crying, and now you can give some information about the little shrieking imp inside who must be caught with the pincers. "Keep still," you tell the child, "I'll catch him with the pincers and take him out; and then you will be our good boy again!" From a quite varied experience in these experiments, I found that the method works well and the child enters into this theatrical performance of a modernised exorcism with great readiness. He accustoms himself to speak of the prior naughtiness as something foreign to his better self and will easily understand the desirability of ridding himself of bad and unworthy qualities, of anger, malevolence, envy, and other passions or vices.

A similar method is applicable when children, as they frequently will do, hurt themselves and begin to cry. If the pain is not serious and will pass away as soon as their attention is called to something else, a good plan is to post them at one end of the hall, or at one corner of the table, fasten the pain with fictitious nails to the spot where they stand and then bid them run away. In speeding along the hall or running round the table, they will quickly overcome their trouble. The activity of running works up an increased circulation and it will not be long before they forget their pain.

Under no circumstances does it seem advisable to pity children or to join in their complaints, even though they may be justified. Commiseration makes a child dissatisfied and you can bring the happiest child to tears simply by pitying it for anything, however ridiculous your compassion may be.

Do not show anxiety, for thereby you make the child anxious; do not show any worry about his bad habits, for thus he will be worried himself and you weaken his character. Show a simple and straightforward determination to help the child to discard what

is undesirable in the makeup of his soul, and the child will naturally acquire a habit of ridding himself of the petty vices of childhood before they can harden into habits.

All these methods can be intensified by a review of the past in calm hours. The father and the mother must be the child's most intimate friends and counselors; they ought to tell him when they are alone with him, what they themselves think of this or that naughtiness; what other people think of it; what will be the consequences; ask him how he would like the same behavior in others; and finally tell him how to mend the fault and how to avoid it in the future. There should be no scolding at such a moment, for that would disturb the calmness of the child's mind. In order to render this instruction effective, not for the moment only, but for the child's whole life, it should be a lesson of self-contemplation and a calm self-criticism.

When the child grows older, he should gradually acquire the habit of exercising this self-criticism for himself; and here it is advisable to call the child's early attention to the dangers of vanity.

STIMULATE SELF-CRITICISM.

While strength of will is a virtue, vanity is a vice. Vanity is the most dangerous demon that can take hold of us, for vanity renders self-criticism impossible.

Every child will be able to grasp the importance and paramount usefulness of self-criticism. Only tell him the story of a man who always blamed others when he did some foolish thing, and who, adhering to the belief in his own perfection, remained a fool all his lifetime. He gathered a rich store of bad experiences and came finally to the conclusion that the whole world was wrong, —but the world thought all the while there was something wrong with him. On the other hand, illustrate by the examples of great men, that great successes are never gained without a stern self-criticism. Self-complacency may create a very happy disposition, but this happiness will not be auspicious; it will be the happiness of lucky Hans who joyfully exchanges his gold for a horse, his horse for a cow, his cow for a pig, his pig for a goose, his goose for

a grindstone, and when the grindstone drops into a well, glories in his having so fortunately got rid of his burden. The way to success in life is the very opposite to self-complacency and is incompatible with vanity. When the foolish man complains about the wrongs of others, the wise man, whenever ill fate befalls him, inquires first into the origin of his own mistakes. So, for instance, when he is cheated, he does not glory in his own honesty and blame the rascal who cheated him, but blames his own credulity and his lack of experience not to have seen through the schemes by which he has been caught.

Remember that the net in which most people are caught is their own vanity. La Fontaine tells the instructive fable of the raven and the fox and adds that the raven, seeing his own foolishness, vowed that he would never be caught again; but the probability is that a vain fellow would not have blamed himself; he would have scolded about the untrustworthiness of people and the frauds of foxes, but would have again fallen an easy prey to the next flatterer who approached him in the same manner.

What appears to us a misfortune is frequently the result of a bad quality in our character. Gamblers are in the habit of catching their victims by first giving them a chance to cheat; tricky agents make you believe that they sell underprice; dishonest lawyers give you a chance to make a contract in which you believe that you cheat some one else, while in fact you are being cheated.

Think of the victims of Reynard the Fox. He knows the foibles of the messengers sent to him and ensnares them in their own vices. The cat is caught by his preference for mice, the wolf by his greed, the bear by his love of honey. None of them blames himself, but all denounce the fox's villainy.

Considering the truth that our own petty vices are the greatest dangers of our life, we must early teach children to regard them as foreign elements which they should cast off, and must help our youngsters to overcome them with grace and in good humor. Genuine manliness is not possible without self-criticism and is built upon a rigorous self-discipline.

DO NOT PUNISH.

Since the days of barbarism a constant change in the treatment of punishment has been going on in civilised countries. The old method was a system of retaliation. Punishment is revenge. The new method which replaces punishment by correction may be called, briefly, a system of education. The turning point in the evolutionary curve of mankind is of a religious nature. It appears first as goodwill toward all, the good and the bad alike, and in the history of the East in Buddha's teaching, it is based on the consideration that all creatures, good and evil ones, are the product of circumstances, and that therefore the bad deserve compassion, not hatred. If a man's character is conditioned by his past, by the circumstances under which he was developed, there is no longer any sense in expecting that he should act differently from what he does according to his nature. Every creature is as its own life history, since the beginning of life on earth, has formed it; and as it is, so it will act. There is no cause for becoming excited about criminal actions. We must understand them, we must above all investigate their motives, and must treat them in the same way as a physician treats a disease. That society, or the government, or the judge, should commit a crime on the criminal because the criminal has committed a crime on society, is as ridiculous as it would be to inflict upon the stomach a stomach-ache because by its indigestion it has produced a head-ache or otherwise injured the fellow-limbs of its organism. Retaliation is a continuation of moral disease, not a cure, and what we need is a cure. Taking this ground, Buddha abolished in the realm of religion the idea of hatred and revenge by saying that hatred is not appeased by hatred. Hatred ceases by non-hatred only. And in the same spirit Christ taught in the Sermon on the Mount (Matt. v. 38–39), saying:

"Ye have heard that it hath been said, An eye for an eye, and a tooth for a tooth: But I say unto you, That ye resist not evil."

We need not discuss theology in this place, and do not care in this connexion whether Christ's doctrine really was an absolute

non-resistance of evil, as is maintained in this and the following sentences. We only point out the truth of the sentiment which prompted these sayings and which should be expressed in the sentence: "Resist not evil with evil." Evil must be resisted; but we must not retaliate. Instead of demanding a tooth for a tooth, and giving a lie for a lie, we must overcome a lie by truth, wrong by right, and violence by patience. This ideal of Buddhism and of Christianity has not been introduced into our law books, but is an ideal which mankind in its further progress of evolution is endeavoring to actualise. Justice during the Middle Ages was to a great extent an administration of retaliating punishments. Criminals condemned to die were usually pinched with red hot tongs, their limbs were broken on the wheel, they were burned alive, and all kinds of cruel torture were cunningly invented to make the death of the criminal as painful as possible. All this has changed. Capital punishment, above all, has ceased to be a retaliation, and has become more and more a mere protection against the repetition of a crime. As it would be wrong to leave a tiger abroad, so a man, who by his very nature is a murderer, should not be allowed to remain at liberty, and since imprisonment is on the one hand not a sufficient guarantee for the safety of society, and on the other hand a more cruel treatment than death, capital punishment is, so far as our civilisation goes, still a necessity of our penal law. Yet the attempt is no longer made to retaliate on the murderer the cruelties which he has committed. It is a maxim which has never been explicitly introduced by law, but which is nevertheless firmly established in all civilised countries, that the death punishment should be inflicted with as little pain as possible. The criminal is simply no longer allowed to live, and capital punishment has ceased to be a revenge or retaliation. It has become a cure based upon the experience that the man who commits a murder is liable to commit another murder. Hence a murderer who has killed a man not on account of his murderous inclination, but through an unhappy complication of circumstances, be it in defence of his honor, or for some other reason which is regarded as a sufficient explanation of an unusual and justifiable wrath, will not be treated as a habitual

murderer, and is, according to the laws of all civilised countries not punishable by death.

Our penal laws are not as yet fully adapted to the new view. All the minor punishments are still based upon the plan of retaliation which makes our prisons and penitentiaries breeding-places of crime instead of what they ought to be, moral hospitals. There is no question, however, that the more human treatment of the criminal will in time be brought about. The result will as surely take place as the religious considerations of justice towards our fallen fellowmen and a scientific consideration of crime as a moral disease will in the long run change our methods in education as well as in the administration of justice.

What our courts of justice ought to be and ought to become, parents must realise on a smaller scale in the education of their children. There ought to be no punishment of children in the old and proper sense of punishment. Punishment, if we are permitted to use the old word in a more general sense, ought to become a method of education, and ought to cease inflicting pain without any ulterior purpose. Punishment ought to be nothing but the consequences of a wrong act which is brought home to the knowledge and the sentiments of the child. As a rule, parents do just the reverse. They make the children escape the evil consequences of wrong doing, and let them feel a punishment, the reason of which must naturally appear as the expression of wrath or ill-will. If a child breaks things, it ought, if possible, be made to feel the loss of the broken thing. Suppose he has broken his own glass, then it should not be replaced at once by a new one. If it is the glass of his brother or sister, he ought to give up his own to replace the loss, and if possible some arrangement should be made to let the harm that he has caused fall, at least in part, upon himself.

There is perhaps no harm for parents to show anger if children become very mischievous, but the anger should be felt by the child to be the direct result of his action.

There is a rule propounded by educators never to punish in a state of anger, and the rule is good. But it is insufficient, in so far as the child ought to feel the anger of his parents as the result

of his own deeds more than the punishment itself. It may be advisable even to simulate anger so as to impress the child's mind with the danger of losing his parents' affection. The child ought to learn what deeds are productive of wrath, and this should be made a means (one of the means only) of learning to avoid them. Otherwise, if parents would not resent mischievous acts, the child would, when later on he becomes acquainted with other people, be very much disappointed in the world, for no one else would exhibit the same patience.

The proper punishment would be to let a child feel the full result of wrong and unwise deeds. If once in a while you allow a child to eat his fill of sweets and become sick, and remind him when sick that his sickness is of his own doing, you apply a natural punishment, which without making him obstinate will cure him of a bad habit.

To educate children by simply forbidding is not the right way of securing manly independence. There ought to be as much liberty as possible, for by liberty alone the sentiment of responsibility can be insured.

DIRECT AND DIVERT, BUT DO NOT SUPPRESS.

Man is by nature a creature that yearns for activity. All his nerves and muscles are storehouses freighted with energy which are eager to perform work. The main duty of education consists in directing the work, but not in suppressing it. Every function performed establishes a case of precedence, and however easy, as a rule, it may be to dig the first channel for the rivers of the soul, it is very difficult to change them as soon as they are firmly established in habits.

Children that are taught to busy themselves will be more manageable when they grow older, than children who in their earlier years are left to themselves. The age of early babyhood so much neglected now, is in fact the most important period of a man's whole life, and this is not less true because the evil consequences that result from mistakes made at the beginning of life, are mostly difficult to trace.

The child has a right to be active and parents and nurses should see to it that when the little one is in good health it should always be busy.

Now it sometimes happens that a child does something that it should not do, that it touches things which it might break, that it begins to busy itself with things which it would better leave alone. In such cases it is not advisable to interfere violently by tearing away the thing which it should not handle. Educators will find it easy to divert the child's attention by giving it some other toy which for the sake of newness, or for some other reason, it will at once prefer.

The policy for all cases ought to be to divert the attention of a child instead of robbing it by violence of any object which it may happen to take hold of.

When things are taken away from the child, the child will naturally cry, and no one can blame the little fellow for it, but if its attention be diverted he will drop the forbidden thing voluntarily and there will be no crying and no naughtiness.

Therefore, nurses should make it a rule never to snatch away anything from a child before substituting for it some other toy which would appear at the moment preferable to the child's mind.

The same is true of bad as well as dangerous habits to which a child should be disaccustomed. Children generally love pencils and will put them into their mouths. Of course they may fall and knock the point of the pencil right into their throat. If children are forbidden to put the pencil into their mouth, they will be all the more anxious to do so and may develop a habit of doing it when unobserved, whereby an accident is almost sure to happen. But if you teach the child to take the pencil lengthwise in the mouth, he will more readily discontinue putting in the point foremost and you will forestall in this way the formation of a dangerous habit.

What is true of children is true generally. Any one who has to deal with obstinate people, especially the warden of an asylum with insane people, will be wise never to antagonise passionate outbursts unless compelled to do so by the direst necessity. Diversion is easier than suppression.

There is a story about a warden of an insane asylum who visited one of his colleague's institutions. He was admitted to the grounds by the janitor who knew him personally, and while walking in the park, met a gentleman who introduced himself as a doctor and inspector of the wards. The two gentleman shook hands as colleagues and enjoyed a pleasant walk and talk and at last the visitor was shown up to a wooden tower which commanded a general view of the park and its vicinity. When the two reached the top, the inspector at once proposed to his guest to jump down, as that was his fashion with all the people whom he showed round through the institution. Now at once the visitor, to his dismay, becomes aware of the fact that he is face to face with one of the patients, who by some mishap must have escaped from his keeper, and as insane people frequently do, had up to that time behaved in a quite sensible way. But now the pretended inspector began to show all the symptoms of an approaching attack, and the visitor looked round for a means of defending himself in case of aggression. Had they come to a fight on the narrow platform of the tower, they would both have fallen a considerable depth. The visitor, being accustomed to insane persons, remained calm and said quietly to his companion: "You want me to jump down from this tower? That is nothing, every one can do that; but it is much more difficult to jump up from below. I'll show you how to do it, come down." The patient was startled, and asked, "Can you do that really?" "Of course I can," was the reply, "come down and I'll show you." Thus the expert alienist diverted the wild imagination of the patient and led him down to a place in which he was no longer in danger. They had scarcely reached the ground when the keeper arrived and took charge of the fugitive.

The lesson is obvious and the policy of the clever warden can be profitably imitated in practical life whether in dealing with irascible adults, with mobs, or with children.

EDITOR.

LITERARY CORRESPONDENCE.

PHILOSOPHY IN GERMANY AND AUSTRIA.[1]

MY report on German philosophy in the Nineteenth Century (*Monist*, Vol. I. No. 2) referred in closing to the necessity for meeting the increasing influence of theological power and clerical philosophy with a vigorous combination and development of the results of free inquiry into a well-grounded, monistic theory of the universe. It does not seem as though this admonition had found any accord in the inner tendencies of philosophic thought in Germany. True, we may regard such a work as WILHELM WUNDT'S *System der Philosophie* as a vigorous step in this direction, although the circle which it can influence is of course only a narrow one because of the difficulty of presentation and because of the extraordinary subtlety of the abstractions treated. Wundt, the ablest force in German philosophy since the death of Lotze and Fechner, is qualified for such a work of systematisation by the fact that he is a citizen of two realms which have often seemed to be arrayed in hostility in the nineteenth century: natural science and philosophy. And the system which he presents as the result of his life-work is beyond doubt and in the best sense monistic. True, it refrains from abolishing the distinction between nature and spirit by any such conceptual unity as that by which either nature is spiritualised or the spirit materialised, after the fashion of idealism or materialism. But it does not for all that separate them after the fashion of dualism. To it the spirit-world is a parallel manifestation to

[1] Translated from the manuscript of Prof. F. Jodl by W. H. Carruth of the University of Kansas.

the natural world, and is associated with the highest forms of the latter in organic life. The spirit is developed from nature; nature is the preparatory stage of the spirit, and accordingly in its very essence and action a self-development of the spirit. Only in two points does this system overstep the limits which a strictly critical treatment would perhaps endeavor to observe. These are the notion of life and the notion of the collective will. The phenomena of the organic world seem intelligible to Wundt only upon the assumption that the highest forms of natural causality manifested in them are at the same time the results of spiritual forces—of the will. Thence their adaptation to their purposes. The will of living creatures is the creator of objective purposes in nature, inasmuch as it has itself exercised a modifying influence upon her organisms. This is a significant after-effect of Schopenhauer's notions appearing at the close of the century. Perhaps Schopenhauer's Platonism has also influenced Wundt's notion of the collective will, to which he ascribes an importance greater than it commonly receives in psychology and sociology. Here too there is room for doubt whether in every case where we meet expressions of the will of a collective body we have to deal with a really independent existence of this collective will, or whether it is not rather merely an aggregation of individual wills with common aims and common means of expression. But the vital point of the whole is a genuinely modern thought: the notion of a collective human ideal, the establishment of a general community of purpose in mankind as foundation for the greatest possible development of human energies devoted to the production of the things of the spirit. And from this point Wundt too finally enters the region of the transcendental. The ideal of civilisation shares in the transient character of all earthly ambitions. It may be regarded as the final goal of the order of things which we know, but not as the absolute ultimate goal; it is itself only an element of a more universal order of things which Wundt calls God. I consider this adoption and adaptation of a traditional mode of expression not quite justified. For, since Wundt characterises the notion of a direct interference of his divinity with the affairs of the world as unthinkable and even irre-

ligious, and reduces the idea of immortality to that of the permanence of objective spiritual values, this conception of God lacks entirely the traditional content. It seems to me to express only the conviction that the forms of the highest spiritual life have a significance not merely for this earth, but for the universe; that not only the laws of nature but also the moral laws are cosmic laws,—a conviction in which this modern monism closely approaches the older speculative idealism.

It is unnecessary to refer to further details of this philosophy. Wundt's name is familiar to the whole world, and his utterances are sure of being considered and weighed wherever philosophy is cultivated. Therefore I would like to call the attention of my readers to some more recent works by less-known men, who likewise attempt by philosophic methods to shape the results of modern research into a consistent whole.

GIDEON SPICKER'S book, *Der Kampf zweier Weltanschauungen*,[1] is the outcome of the close reciprocal influence of historical studies and systematic labors. The author, who is a professor in the Akademie at Münster in Westphalia, calls the work in a sub-title: a critique of ancient and most recent philosophy including Christian revelation. In many respects it recalls an earlier work of the same author: *Ueber die Ursachen des Verfalls der Philosophie in alter und neuer Zeit.* The cause of this decay seems to Spicker to be the same in all times: the diversion of philosophy from its speculative problems, the neglect of reflection on those "solely great and important themes" for the sake of which alone, as Schelling somewhere says, it is worth while to pursue philosophy.

Such a demand is not to-day popular everywhere in the ranks of those who call themselves philosophers. Often and emphatically the opposite view has been expressed: that this very love of speculation is the curse of philosophy, the source of numerous extravagances, the reason of its being discredited in the eyes of exact science. This view, which tends to resolve philosophy into a group of special sciences, destroys the very life of philosophy, as Spicker

[1] Stuttgart, 1898.

sees it. He cites the case of history. Any one, he says, who considers how the transcendental idea holds its own and comes to the front beside the empirical, throughout the whole course of human thought, cannot doubt that we have to do with a profound spiritual need, and cannot believe that the present predominance of the empirical method of thought and investigation is the final stage of our development. Any one who should propose to banish for ever from philosophy the investigation of the transcendental would inevitably lose all appreciation of the relative truth of earlier philosophical development; "he wanders through history as though it were a cemetery, regarding systems as graves and the works handed down to us as gravestones the only remaining purpose of which is to tell us who lie buried there." Spicker opposes with all his might such a merely negative valuation of the intellectual work which is stored up in the past development of philosophical thought, and I think he is quite right. No extension of the field of the special branches of philosophy, no amount of progress in the natural and the historical sciences can satisfy the desire for the unification in incontrovertible concepts of all our fields of knowledge,—the need, renewed with each generation, of formulating a theory of the universe. On the contrary, this need will continue to grow in proportion as the content of our knowledge increases and becomes actually enormous. We already hear voices to-day, in the midst of our empiric-inductive and analytic age, which predict the near approach of a period of reconstruction and synthesis.

However, Spicker's way of characterising what he calls "speculation," or "the transcendent function of philosophy," is not always acceptable. We shall willingly agree with him when he points out as a distinction between speculation and empiricism that every special science is restricted to a sort of partial completeness, while speculation directs its attention always and everywhere to the completeness of the whole. But this supports only in a limited sense the correctness of the proposition which Spicker maintains in the face of the empiricists: "Higher philosophy begins where experience ends." How else can we attain to a practicable conception of the complete whole, to a theory of the universe, than upon the

basis of the logical examination of the greatest possible number of particular experiences? We can, indeed, go beyond immediate experience hypothetically, but whenever the consequences of our hypothesis are not verifiable we acquire no knowledge.

But even this demand is not strictly maintained; imperceptibly something different takes its place: the demand for scientific knowledge of an ultimate principle, the knowledge of the absolute. This Spicker calls the ideal of philosophy, and this ideal has both an objective and a subjective import, because the conception of the absolute has become all powerful in all possible states of civilisation, and is yet to be perfected. In brief, the real aim of what he calls speculation is in Spicker's mind the deepening of the knowledge of God. If any one doubts this, Spicker himself offers him the most infallible demonstration in his Second Part, which he calls "Kritische Entwickelung des Princips," and in which three long chapters are devoted to the examination of pantheism, theism, and orthodoxism. They show incidentally that Spicker is by no means a secret partisan of the Church. His interpretation of history is entirely different from that which is popular with the Catholic Church. He recognises two periods of philosophical advance: that of Greek idealism, and that of modern speculative idealism; scholasticism is regarded not as a climax, but only as a transition stage. Spicker reproaches it with having gathered together empirically its premises: i. e., Christian dogmatism and Aristotelian philosophy, harmonising them as far as possible instead of developing each in accordance with its logical content and deriving the world from them.

Spicker recognises the universal truths contained in theoretical Christianity, but he attacks the rigid, inflexible form given these truths by theology, a form which makes them a check upon free thought and research. In enthusiastic words he everywhere advocates the autonomy of reason, which he calls the root and flower of the whole modern view of the universe. It constitutes the decisive difference between the modern man and the man of antiquity or of the Middle Ages. Kant, who in the Catholic view of history was the very spiritual seducer of the modern world, occupies in Spick-

er's opinion the centre of modern philosophy from Descartes to Hegel, just as Socrates did in the philosophy of antiquity between Thales and Plato. "Any one who goes beneath Kant's words and grasps simply and solely the idea of the problem will never deny the importance of his Kritik, apart from its untenable conclusions." Nevertheless, it is only a preparation, not a definitive achievement. We must look to the future for the genius who shall make a systematic summary of the empiric and the speculative conclusions of the present day and represent the modern conception of the universe as did Aristotle that of antiquity,—not the immediate future, indeed, for to-day the general depreciation of speculative philosophy does not bespeak any great demand for such an unusual phenomenon.

Despite these doubts, however, Spicker himself is not disposed to stop with the critical and methodic preparations for this task of the future. He promises the early conclusion of his work in the shape of a systematic section, intended to meet his own needs if not to satisfy an age lost in empiricism. I must defer until the completion of his work the discussion of his treatment of the ideas of God and of the notions of religion. It has many keen and notable thoughts; what their total significance may be can be shown only by the deductions which the author himself will make from it. In all directions Spicker's treatise offers a rich treat. He is a serious, meditative spirit, equipped with a comprehensive knowledge of the spheres of philosophical and theological thought, and who, unconfused by ephemeral opinions and unconcerned about immediate success, goes his own quiet ways. There is reason to look forward with eagerness to the positive completion of his views.

What Spicker promises for his Second Part, WILHELM HAACKE offers to give ready to hand in his essay, *Die Schöpfung des Menschen und seiner Ideale* (Jena, 1895). This book also announces its purpose in its sub-title, "An attempt to reconcile religion and science." But while Spicker seeks for his undertaking a broad basis in the whole previous development of philosophic thought and in historical and critical reflections, Haacke's attempt is founded chiefly on zoölogy and the doctrine of evolution. But the result he reaches

is not void of contradictions, and the genetic development of spiritual phenomena is far from satisfactory. Haacke takes his stand frankly upon the platform of a mechanical theory of descent. He declares this to be the only authoritative theory in natural science, and gives it the most definite expression in the proposition, that the whole world is but a mass of unequally distributed atoms, which may be conceived as centres of condensation in a continuous and homogeneous matter, and subject to the laws of mechanics. And of all the mechanical theories of descent which are treated in detail in the Second Part, the only consistent one seems to him to be that of epigenesis, propounded at the end of the last century by Kaspar Wolf. In the form which he himself gives to this theory it teaches that the germ of the organism consists of a substance already shaped, from which the organs to come are developed by transformism by virtue of a formative principle inherent in all beings. This formative principle Haacke calls the endeavor of every object in nature to come into equilibrium with its environment, and ascribes to it cosmic as well as psychologic significance which goes far beyond the ordinary scope of biology.

A great part of the book, which is supplied with numerous illustrations, is accordingly devoted to the simple history of development. Aimed in a polemic spirit against Darwin, and especially against August Weismann and in general against the theory of preformation, it attempts to confront the two opposing theories with the whole wealth of the now available results of investigation, and to derive the development of animal forms, as well as of man as a member of the animal kingdom, from the endeavor after equilibrium. The definitive criticism of this exposition belongs to biology.

Personally I am much attracted to the purely mechanical theory of natural phenomena as well as to the idea of transformism, as opposed to any form of preformation. The way in which the phenomena of the soul and of civilisation—language, beauty, morality, truth, religion—are derived from the universal tendency toward equilibrium, and the way in which the author attempts to deduce from the same principle the practical norms for individual conduct as well as for the institutions of nations, is altogether too superfi-

cial. The inadequacy of these attempts can scarcely be doubted by one who is even moderately acquainted with the extraordinarily complex character of the problems treated and with the wealth of ideas in the sciences involved in their solution. Haacke's achievement can be regarded at best only as a beginning, an index for seeking the manifestations of the principle of equilibrium in the spiritual world; the author is very far from even the approach to a solution of this tremendous simplification and unification.

While in this point he performs less than he promises, in other respects he gives more than necessary. From one who takes his stand upon the mechanical theory of descent and undertakes to describe the origin of man and his soul, we have a right to expect that his attention will be especially directed to the appearance of consciousness in the organic world. Numerous attempts have already been made to explain from the necessities of intensifying and developing life the origin of consciousness. One would think that the principle of equilibrium between the organism and its environment would find important applications to this subject. But instead of a searching genetic investigation we find in Haacke only a dogma. In dealing with man and animal life we cannot possibly deny the parallelism of spiritual and mechanical phenomena, because it is forced upon our attention by the most conclusive facts. Haacke postulates it outright for all the phenomena of nature, even for physiological and chemical processes, although here it is not supported by a single fact, but is purely hypothetical. Haacke tries to overcome the dubious character of these assumptions by declaring: "Any one who rejects the assumption of a will in the inorganic world must be prepared to deny sensation and will to other men." Thus he arrives at Schopenhauer's familiar proposition: "Wherever there is motion there is will," to which is added in another place the proposition: "Wherever there is feeling there is the will to feel." As Schopenhauer makes will identical with life, so Haacke makes the will equivalent to equilibrium, the creator of the world that we can observe and investigate. This assumption has for Haacke a different significance from that which it has for most other advocates of the idea of panpsychism. As a rule

they base their argument upon the impossibility of explaining the subjective as evolved from the objective. Therefore the psychic must be regarded as one of the elemental phases of the world. By his theory of the universe, which he regards as consisting of material elements and complexes which are at the same time souls or media of psychic phenomena, Haacke thinks he has prepared the way for the possibility of harmony between the mechanical and the teleological view of nature. This suggests that phase of Wundt's system which I have mentioned above. Now it is easy to see how much farther this panpsychism goes than that of Wundt, which attributes soul only to living beings. But Wundt makes a serious use of this animism for the explanation of objective teleology, while for Haacke this thought of panpsychism is merely a bit of decoration, a philosophic fad. Natural science is and must remain mechanical. The author repeatedly declares that no knowledge can be derived from panpsychism. And yet he is in earnest about this fad. "It must permit us to give to science what belongs to science, and leave every one free to give to God what is God's." I have difficulty in following the author here. Will the course of the world, in which he sees only mechanical causality, be different if there is psychic activity behind all the phenomena of nature? And why introduce into a universe, whose supreme law has been announced as the endeavor after equilibrium, such a "watch-maker" deism, to transform the chaos into a cosmos? The double-entry bookkeeping proposed by the author, with an account for science and another for faith, is an old and worn-out device, which will fail to satisfy the readers of *The Monist*, above all people.

The book is another example of the familiar experience that it is a serious error for naturalists to assume that their equipment in natural science as such qualifies them for the solution of philosophic problems. And a specialist is amused by Haacke's assurance that his philosophy, despite occasional agreements with other thinkers, is strictly his own; that the naturalist must make his own philosophy, in case he needs a philosophy. As though the development of a system of philosophy were something which could be accom-

plished quite on the side, and as though in such a way anything else than personal crotchets were likely to appear in the results.

Much more peculiar than such mental gymnastics of a naturalist turned philosopher seem the dogmatic convictions of a philosopher turned theologian, as seen in the recently completed *Geschichte des Idealismus* by OTTO WILLMANN, professor of philosophy and pedagogy in the German university of Prague. What the author means by idealism is that dualistic and transcendental mode of thought which is anticipatively hinted in Indian, Jewish, and Orphic wisdom and which first found its logically treated and formally completed expression in Plato and Aristotle. The destinies of this mode of thought are in Willmann's mind the same as those of philosophy, and are a sort of drama of universal history in which the naturalism of all ages and especially all modern philosophy plays the role of "Diabolus," the evil principle. The more independent the development of philosophy since the age of the Reformation the more it rouses the wrath of Willmann. The "royal road of human thought," once found when the great systems of antiquity were enriched and deepened by the conceptions of Christian dogmatics, has been deserted in inexcusable frivolity. The whole philosophic development of modern times is a long and painful path of error: after the reign of genuine idealism, the reign of false idealism culminating in Kant and bringing as its practical results the great revolutionary movements. The nineteenth century in its attempts to resume the method and course of scholasticism is slowly bringing some light into the boundless intellectual darkness, and finally, in the bull *Æterni Patris*, Leo XIII. speaks the word of redemption, leading philosophy back, after the endless fluctuation of systems, upon the firm foundation of Thomistic theory, the alliance between faith and reason.

It is necessary to have read treatises of this sort in order to be clearly aware of the intellectual gulf which separates Catholicism and Catholic scholarship from that philosophical method which we are accustomed to regard as the achievement of the recent centuries. It is an impression similar to that which would be experienced by an astronomer if he unexpectedly came across an adher-

ent of the geocentric theory who should attempt to demonstrate that the history of astronomy since the time of Copernicus has been only a series of harmful errors. On this very account such works are of value. They throw a sharp light upon the error which has been implanted in many people by the outwardly so conciliatory friends of the present pontificate, to the effect that there is a real approach between modern science and Catholic orthodoxy. Such a reconciliation is impossible. For the very principle to which the modern world owes its proudest triumphs in thought as well as in action, the principle of the autonomy of reason, is in the eyes of the hieratic philosophy the root of all evil. But such books as Willmann's teach still more than this. They reveal a strange world, both theoretically and practically, in the profound intolerance which dominates them. That they oppose and condemn views unlike their own, is but natural. This is the right and duty of every strong and honest conviction. The offensive thing about this polemic method in history is that its followers make the "errors" of every thinker who deviates from the line of Plato, Aristotle, Aquinas, a matter of conscience, and ascribe them to moral turpitude. And this is what Willmann does, as Haffner had done before him, and before Haffner, Baader. Here the system to which these men are devoted shows its cloven foot, and teaches us what we might expect for intellectual freedom if ever this orthodoxy again had control of "the secular arm."

It is a wide horizon which is swept by the eye of a scholar like Willmann. All the resources of the most cunning literary training and of the most extensive reading are at his command, and there can be no doubt that *Die Geschichte des Idealismus* is one of the most impressive of all the philosophical works which have been written under the influence of the Catholic propaganda during the last few decades. And yet one draws a sigh of relief when he turns from its zeal-inspired pages to another work of history of recent date, in which Theodor Gomperz has begun to sum up the results of a long life of investigation: *Griechische Denker, eine Geschichte der antiken Philosophie;* I. Vol., 1896. To the task of painting a new panorama of Greek philosophy to succeed Zeller's classic book,

which has long been the property of international scholarship, Gomperz brings a remarkably well adapted equipment. For more than three decades he has been employed as a teacher of classical philology in the University of Vienna, devoting himself all this time in large measure to the work of linguistic and antiquarian investigation of classic philosophical literature. He has not only worked over this literature even to its most minute details, but has increased its fragmentary and incomplete stock by important new discoveries. But the eye of the scholarly philologist reaches farther than this: it covers, one may say, the whole field of the writings of antiquity, and has also the gift of using this field freely to supplement the often scanty and vague account of individual thinkers and their works, to throw light upon the numerous difficulties which make the pictures of ancient philosophers indistinct and unrecognisable. There is nothing in Gomperz of that philosophic bias, that monomania for antiquity which is so often felt in learned and enthusiastic antiquarians. His knowledge of antiquity is not an artificially animated mummy, but a portion of our own scientific thought. Not a world apart, but our world in the making. Only thus is the intellectual life of antiquity made really accessible to us. The remote past becomes present. Hoary controversies, which seem to the untrained and uninitiated mind to be partly childish, partly irrelevant, take on the interest of burning questions of the day; we discover in them the problems that occupy us so intensely. Thus the philosophy of antiquity attains for the study of philosophy in general a pedagogic and propædeutic value which has often been claimed for previous treatments of the subject, but which they have been able to demonstrate in practice only in a very slight degree. We are here shown the problems of philosophic thought in their simplest forms, those forms in which for this very reason they are most accessible to the adept. I am disposed to rate this result even higher than the purely historical result which Gomperz himself lays such emphasis upon, the perception of the Greek origin of our whole intellectual culture, a perception which is, in his opinion, the indispensable condition of liberating us from the too great influence of that origin. "If," says

Gomperz, "we are not to regard what has come to pass as primitive and what is artificial as natural, we must attempt to understand thoroughly that process of development. Auguste Comte's utterance, which is so true in the sphere of practice, "We destroy only when we replace with something else," may fairly receive this parallel in the sphere of theory, "We refute only when we have explained."

However, Gomperz expects from a thorough acquaintance with Greek antiquity positive gains for our scholarship. He calls attention to the fact that the undeniable advance of modern thought beyond the achievements of the Greeks is by no means uniform; that it has been vastly less in the moral sciences than in the field of natural science; that many questions of fundamental theory still await their solution, even in the latter field, and that the most familiar and difficult of problems, while they have often changed their outward garb, remain after all at bottom the same. In this, too, I agree with Gomperz. Just such a treatise as his shows how many suggestions applying to the fundamental problems of philosophy are yet to be derived from Greek thought. "*Les anciens ont tout dit, rien prouvé*,"—perhaps we are able to-day with our apparatus to prove many propositions which in ancient Greece were only ingenious conjectures, and to refute many notions which in those days could maintain their equal value with the others.

This is not the place to go into the merits of the present volume. I would only refer to the rich background of general features of national life on which this picture of Greek philosophy is painted, and to the broad limits of the author's conception of philosophy, which permits him to consider also the adjoining territories of mathematical, natural, medical, and historical labors among the Greeks. A multitude of passages, which have hitherto bid defiance to the commentator's skill, appear in a new light before his comprehensive scholarship. Two sections of the book seem to me to deserve especial mention: the exposition of the beginning of greater profundity in the Greek popular religion of the Orphic sect, and the connexion of these thoughts with the Pythagorean philosophy; and second, the presentation of Sophistic philosophy in two de-

tailed character sketches of Gorgias and of Protagoras. These are two admirable performances, the one a contrast to the poverty, the other a contrast to the rank and abundant absurdities of the average treatment of such subjects. The information that is here derived for us, from an incredibly confused and scanty material, upon the development of the Greek conception of the soul, of the idea of immortality, the notions of future rewards and punishments, and on the other hand upon the very positive, but by no means always conclusive, performances of the Sophists, are in my opinion among the most valuable results of the work. Two more volumes are to follow, in one of which the author is to treat Socrates and the Socratic school, Plato and the Academy, Aristotle and his disciples, and, in the third volume, the Stoics, the Epicureans, mysticism, scepticism and syncretism in ancient times. It is greatly to be hoped that it may be granted the author from the abundance of material at his command to finish the work in accordance with his plan, thus setting a genuine boundary stone to the accomplishment of a century of incessant labor in the field of the history of Greek thought. Certain portions of the volumes yet to come may be looked forward to with especial interest, particularly the treatment of that whole complex of most difficult critical problems which are connected with the philosophy of Socrates and Plato.

Under the scientific supervision of R. FALKENBERG, professor of philosophy at the University of Erlangen, whose excellent outline of the history of modern philosophy has already been translated into English, the publishing-house of Frommann in Stuttgart has begun an encyclopedic work, *Klassiker der Philosophie.* It is evident that the similar undertakings in English, the collections which have been published by Grigg and Blackwood under the supervision respectively of Knight and Morris, were the models for the present work. Inasmuch as monographs in German on the leaders of philosophic thought are already numerous, it is entirely proper that this collection should not too strictly limit the scope of "classics," but include many really important though rarely delineated thinkers. Up to date there have appeared: G. Th. Fechner, the keen panpsychist and founder of experimental psychology,

portrayed by Lasswitz; Hobbes, by F. Toennies, who in conjunction with Croom Robertson discovered and published the *Elements of Law* in its original form; Herbert Spencer, by P. Gaupp; Friedrich Nietzsche, by Alois Riehl; Kant, by Fr. Paulsen; and two works by Harald Höffding, the distinguished Danish philosopher, who once more in this work demonstrates his close connexion with German intellectual life,—Rousseau and Sören Kierkegaard. It is not probable that all these works would have equal interest for the readers of *The Monist*. Some of the persons here represented are familiar enough through English characterisations. But I should like to call attention to the work of Alois Riehl on Nietzsche, and that of Harald Höffding on Kierkegaard. We here meet two prominent philosophers of our time, themselves not so very different in their personal views, as portrayers of two individuals who are equally important as authors, equally original as thinkers, equally paradoxical in their utterances, but who stand at opposite poles in the world of thought.

Kierkegaard, who took up the religious problem with tremendous seriousness, who, entirely filled with the spirit and thought of the New Testament, measured by it with inexorable strength of character and of logic everything in our day that claims to be Christianity or indeed practical conviction of any sort; yet not merely a preacher and theologian, but at the same time one who endeavors to interpret the world upon the basis of religious truth, to combine religion and philosophy in one comprehensive theory. Nietzsche, on the other hand, the clever aphorist, the uncompromising sceptic, and above all the fiercest, most scoffing, and at the same time most deep-thrusting enemy whom Christianity has had among philosophers since Hume and Voltaire, an opponent compared with whom David Strauss and Feuerbach were pious pastors,—hostile not only to Christianity as a dogma, but to the whole body of moral doctrines that have grown up under its spiritual influence: love, self-denial, altruism, the welfare of the masses. Both of them stiffly opposed to all tradition; both destroyers of established standards, —but with entirely opposite tendencies. The comparison of these two delineations, both of which are so excellent from a literary

point of view and so thoroughly studied out, affords one of the most enjoyable antitheses of philosophic literature. Both of them are notable for the keen psychology with which they present the complicated fabric of these strange minds. Riehl's merit is the greater, in proportion as it was more difficult to be temperate in the estimate of Nietzsche. Long neglected and scarcely heeded, he is to-day the idol of a numerous school, which thinks to honor the boldest paradoxer of all times, and the most determined freethinker, by constructing a system from certain of his conceits and by copying in an insufferably stilted jargon the poetic splendor, the epigrammatic condensation of his style,—and on the other hand he is the very Anti-Christ and Satan to all who hold to the faith of the Church as well as to all those plodding conservative souls who think that the moral world will collapse if any one throws a strong light into the face of the standard conventional morality and shows the amount of rouge upon it.

Paulsen's treatment of Kant, occupying two volumes, turned out rather too detailed for the aims of the collection. A condensed presentation of the leading thoughts would have been sufficient in a time when such an immense amount of study is devoted to Kant. Naturally there lies in this very importance of Kant for the study of philosophy at the present day a strong temptation to put forward one's individual views, and on this account I would call especial attention to Paulsen's book. A thought which Paulsen expressed in a previous work on Kant dominates the present presentation of his whole system. I think this thought must strike every one who looks back to Kant from the scientific beliefs of to-day. To the mild German rationalism of the previous century, sprung from the school of Leibniz and Wolf, Kant appeared as the "all-destroyer"; to us, comparing his work with the thoughts of Hume and Diderot, and looking at it with the eyes of Mill and Feuerbach, he seems almost like an "all-restorer." Not scepticism, not radicalism, but rationalism is the right notion of Kant's philosophy. His thought in its innermost motives is related to that of Plato, as Ernst Laas, in his *Idealismus und Positivismus*, demonstrated by numerous examples; the old rationalistic metaphysics of Cudworth, Clarke,

Leibniz, and Wolf is in due time transformed and celebrates a joyful resurrection as the critical philosophy. Paulsen's whole delineation is dominated by this thought, and one who is not convinced by it need only be reminded of one outward fact: the extraordinary popularity which Kant's philosophy has enjoyed in the second half of our century among all who regarded themselves as the chosen guardians of so-called idealism. It has joined the ranks of the conservative forces. This, indeed, only on the Protestant side, where influential theologians have not only become reconciled to Kant's philosophy, but have seen in it a rallying-point of faith. Catholicism is to-day, more than ever, separated by an impassable gulf from all other intellectual systems. It makes no effort to attain even a measure of harmony with the great currents of intellectual life, but only to construct a sphere of its own and to bring all the others into it. It sees in Kant only a system of negations—a shadowy world filled only with phenomena,—sees the resolution of those supersensual truths, which should be the foundations of all certainty, into mere postulates, i. e., into pious wishes and ungrounded hopes. There are some details of this criticism of Kant with which we are inclined to agree, but no one can survey the totality of his mighty philosophic fabric, and receive without prejudice the impression which it makes as presented anew in Paulsen's treatise, without being filled with reverence for the serious and lofty disposition with which he undertook to save from the ruins of a decaying world the things of the highest spiritual value, casting them into a new mold, as well as for the unity of his conception which is nowhere missing throughout his whole wide system.

VIENNA. FRIEDRICH JODL.

FRANCE.

There is not so much difficulty in clearly epitomising the newest little book of M. G. TARDE,—*The Laws of Society*, as there is in giving a critical estimate of its importance as a *sketch of sociology*, for such is the subtitle of this work and a clear definition of its

lofty aim. M. Tarde is so prolific in ideas, at times of a startling nature, and has expounded them in such densely packed volumes, that it has not infrequently been his misfortune to be misunderstood. He has, accordingly, himself felt the need of exhibiting to his readers the secret bond which unites his three great works—*Les Lois de l'imitation*, *L'Opposition universelle*, and *La Logique sociale*—the bond by which coherency has been imparted to the *membra disjecta* of a single systematic conception, or rather a science of society, which is absolutely new, and whose true character I am desirous of justly appreciating.

Facts are presented to us, according to M. Tarde, under the three main aspects which he has considered in his studies and which are: *repetitions* (there is no science save the science of the general, that is to say, of the individual considered as repeated or as susceptible of being repeated indefinitely): *oppositions* (science seeks the opposites inherent in reality, whereby it studies the destruction as well as the creation of phenomena); and *adaptations* (progressive co-ordination). Repetition, opposition, adaptation, these are "the three different keys by which science unlocks the secrets of the universe." Let us see first what M. Tarde understands by this in the case of repetition.

Scientific progress, he justly remarks, consists in "beginning with single repetitions, or a very small number of repetitions, which are of an imposing and obtrusive character, and in reaching by their consideration an infinity of infinitesimal likenesses and repetitions, real and elementary, which have furnished by their appearance an explanation of the initial repetitions"; and this important remark is not only applicable to repetitions; it is also applicable to oppositions and adaptations. It is restricted, I should say, to establishing the progress of analysis which alone prepares the way for and permits of broader and more exact syntheses. The same advance is accordingly observed everywhere,—in sociology, as in astronomy, botany, or biology. Just as science has substituted for the apparent rotation of the heaven in its entirety the actual facts of a multitude of minor rotations, so also for the historical cycles which Plato assumes, Aristotle substituted detailed repetitions,

which are very frequently true, and thinkers have since established the partial evolution of certain broad and general facts, such as family, property, etc., which it is permissible to analyse still farther into secondary facts. But M. Tarde does not stop here; he is anxious to reach the "elementary repetitions," which are for him the "action of one mind on another mind." The laws of repetition, accordingly, are to sociology what the laws of habit and heredity are to biology, the laws of gravitation to astronomy, and the laws of undulation to physics.

The same remark and the same conclusion are applicable to oppositions and adaptations; for instance, the gross and obvious oppositions of life and death, of youth and old age in biology have been replaced by the infinitesimal oppositions of the oxidation and deoxidation of each single cell, the accumulation and expenditure of force, in all the varied forms of "struggle" or "rhythm"; while at the same time still more profound dissymmetries have been discovered, such as the functional dissymmetry of the two hemispheres of the brain. In sociology we see war reduced to competition and competition to discussion. The "elementary" social opposition finally is to be found in the interior of every individual, in every case that such an individual hesitates between two contrary directions. Just as rhythm and opposition promote repetition directly and variation indirectly, so struggle produces adaptation. And this is the profoundest aspect under which science envisages the universe. To the gigantic geocentric adaptation of the early conception succeeded the partial harmony of the solar system, of the planets with their satellites, etc.; likewise, the "single drama" to which Comte reduces history has made way for the social dramas of Spencer, and these in their turn must be resolved in "elementary" social adaptation, which is that of two men of whom the one is the teacher and the other the learner, and of whom one commands and the other obeys,—or, profounder still, that of two ideas in the brain of a single man. "At the bottom of every association between men," says M. Tarde, "there is originally an association between the ideas of some single man."

In all cases, accordingly, we reach the individual, "the brain

of the genius" who invents and who decides, and from whom all proceeds—in a word, individual or collective psychology. The grand stream of history has a primitive source, viz., invention, and likewise a final destination, viz., the formation of superior personalities.

Such is the central conception, alike new and remarkable, of M. Tarde. What is its significance for the establishment of sociology? That is the question. I see no other way of deciding this point than by considering what is meant by the establishment of a science. The establishing of a science—I may say again at the risk of repetition—is nothing but the determining of how certain successions of facts vary as the function of certain other successions, or correlatively with certain other successions, and the formulating of the laws of these variations whenever it is possible to extricate such laws from the complexity of phenomena. This is the method which all scientists follow, and sociology can form no exception. M. Tarde will doubtless not dispute this truth; but what in his conception are social facts? At the outset he appears to accept only psychological facts; nevertheless, he does not refuse to recognise that there exist other facts which are the product of the "socialised" individual activity—like the monuments of art, religion, government, economical institutions, etc., which once created may be said to constitute in their turn important factors of that "collective psychology" to which M. Tarde claims to have reduced the science of societies. If science, and this is the starting-point of our definition, is necessarily founded on the comparison of social facts, conducted with a view of exhibiting their simultaneous and successive variations, would not the wisest course be to accept these facts as they are, in the mass and as results solidified so to speak in the concrete form of institutions, or in the numeral form of statistics, leaving out of account the underlying psychological conditions? Is it not true that the study of these last belongs to a particular science which enters sociology but does not constitute it?

As to the second point, which is the formulating of the laws of variation of social facts, the doctrine of M. Tarde seems to enjoin us from seeking to discover any laws which are not simple laws of

psychology. He is averse to conceiving laws of history; he does not see in history a single definite route, but "a net-work of highways with innumerable cross-roads." He is averse also to the theory that social phenomena have definite tendencies or directions. But let us not exaggerate this point. M. Tarde recognises one fact which is preponderating; this fact is scientific invention. Invention determines certain "common tendencies" which the system of history follows in the various spheres of evolution; it is even calculated to lead evolution toward an ideal goal which is final harmony, or a more perfect adaptation of individuals and collectivities. But is this not tantamount to returning to the doctrine of Comte which connects historical development in its entirety with a psychological fact, while still investing the "social fact" with an independent and objective character? And if Comte prematurely flatters himself upon having marked out a definite route for the human mind, and upon having formulated the laws of succession of scientific discoveries, is not M. Tarde wrong in having hesitated to take advantage of his own "dominant fact" to explain the grand aggregate succession of social phenomena which he neither exactly denies nor accepts?

As to the analogies upon which he takes his stand,—the facts which he calls elementary, the imitating of one man by another man, opposition and adaptation of two ideas in the brain of the same individual,—can these facts in so far as they are ultimate facts of analysis really play the same part and render the same service in sociology as gravitation does in astronomy, the undulation of the ether or the mechanical equivalent of heat in mechanics? What M. Tarde succeeds best in bringing out is on the one hand the function of the individual factor and the significance of the psychological situations which are transformed into social states; but the description of these situations cannot supplant the description of the states into which they are transformed, and the social states have, as compared with the individual situations, an originality and peculiar quality of existence such as the most complicated physical facts never present as compared with the elementary functions of vibration, molecular arrangement, and the transform-

ation of heat and work. Even the acceptance of the doctrine of M. Tarde would not absolve us from applying to the study of social facts methods which are quite foreign to the study of the facts of psychology, however legitimate in some regards the consideration of social science as collective psychology may be.

The second point which M. Tarde has sought to place in relief is the relation of the psychological forces to the other forms of energy in the universe—the analogy, vague though it be at present, by which it is possible to connect our states of consciousness with the general rhythm of the phenomena of the world. But this is pre-eminently a philosophical view,—a view which reaches beyond sociology as it reaches also beyond astronomy, physics, and biology; but far be it from my thought to depreciate the ability and originality of this conception; it has not been my intention in these few and meager passages to pass any strictures whatever upon the sociological theory of so eminent a writer as M. Tarde, and I entreat him to see in it only a sincere effort toward comprehension.

* * *

M. Edmond Goblot presents us with an essay on the classification of the sciences, *Essai sur la classification des sciences;* it is the best work with which I am acquainted in this important branch of philosophy. M. Goblot remains faithful to the controlling idea of Comte, while at the same time correcting, completing and improving his doctrine. Spencer, let it be said, has rather confounded and complicated the problem. The succession of the sciences remains in the system of M. Goblot unilinear, and continues to form a hierarchy. The reason for this "single" hierarchy is given us in the "formal unity" of science; the task of every science consisting essentially in its disengaging itself from the concrete knowledge of things, in order to contemplate them from an abstract point of view, from which the human mind embraces beings and phenomena as they are given, and as they are possible, or simply conceivable. As to the reason for the several stages of this hierarchy, it is founded on the diversity of the points of view of the sciences, that is, on the existence of irreducible general concepts which have been successively introduced into it. M. Goblot aban-

dons, therefore, at the start, the distinction between sciences as abstract, deductive, and ideal, and sciences as concrete, experimental, and real. Mathematics, which are an example of the first, is the type, according to him, toward which the second which are the sciences of nature ultimately tend. This does not mean that there are no special and descriptive sciences: we shall see that M. Goblot assigns to these their right places in his classification by basing them upon a very simple consideration.

In the first rank we find arithmetic and algebra, which are the sciences of quantity; in the second rank, geometry, which is the science of space. Mechanics takes third rank as the science of motion and of forces. M. Goblot justly observes that the idea of motion is not irreducible, as is that of space and that of time. It must be constructed by means of a true definition. Like the sciences of quantity and space, rational mechanics begins by establishing special propositions and proceeds by successive generalisations. It offers the best example of that evolution by which sciences which were inductive at the start have become deductive in development from the moment their elementary notions were elucidated and their essential definitions formulated.

The fourth place is assigned to cosmology, which includes physics and chemistry, which are here characterised much more exactly than they were by Comte, and also by M. de Roberty. With Chevreul, M. Goblot assigns to physics the study of the general properties of bodies; to chemistry that of concrete species. In the title, *Theoretical Cosmology*, he distinguishes pure abstract or general cosmology on the one hand, and applied or concrete cosmology on the other; the latter forming three groups together with chemistry and mineralogy, in so far as these are systematic or special studies (the study of species *per se*), with astronomy and physical geography in so far as these are descriptive studies (the distribution of creatures and phenomena in space), with cosmogony and geology in so far as these are historical studies (distribution in time). Corresponding to the aggregate group of theoretical cosmology are the mechanical arts which make particular use of cosmological knowledge.

With life a reality of a new order is introduced which does not represent mechanism, and which makes of physiology an autonomous science. Pleasure and pain are fundamental notions without which there would be no psychology nor physiology. These two sciences are interconnected and inseparable. M. Goblot apparently establishes with biology a fifth order or rank of classification in which we find the same principle of subdivision as in cosmology. But he goes farther and seeks to group the science of life and social science under a single title, bio-psycho-sociology, which he subdivides in the following manner. The theoretical part embraces on the one hand the pure or general science, that is physiology (the laws of the organic, psychological, and social functions of all living beings), on the other hand, the applied sciences which are divided into, (1) special sciences (the systematic order), including botany, zoölogy, anthropology, the organic, psychological, and social properties of every species; (2) the geographical sciences (the order in space), including biology, linguistic, economic, political geography, etc.); (3) the historical sciences (the order in time), including paleontology, history, etc. Hygiene and therapeutics, understood in their broadest significance, correspond, under the title of practical sciences or arts, to this aggregate of theoretical studies, pure and applied.

Ethics for M. Goblot is merely an application of theoretical knowledge, which is science in its entirety. I agree with this view, on the condition that it be not forgotten that ethics, like esthetics, always belongs in one of its aspects to psychology, that is, to pure science. Logic appears to have embarrassed the author; he is unable to classify it with mathematics, as Spencer has done not without good reason in his group of "formal" sciences, but he classifies it resolutely with esthetics, ethics, and religion itself, all these different branches ultimately aiming at realising "the communion of all intellects,"—whereby they may be considered as together forming a branch of sociology.

It remains to be said with regard to sociology that M. Goblot defines it as "a science of general services, both gratuitous and for a compensation." The classification of services, as proposed on

page 212 of the book, may possibly be regarded, he says, as an aperçu of the plan of future sociology; this last part of his work, although its discussions are always interesting, may profit by being re-elaborated, but upon the whole and despite a few defects, it is one of great excellence.

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The work of M. ALFRED ESPINAS, *La philosophie sociale du XVIII. siècle et la Révolution*, is a book on which I should like to speak at length. This work, which is the substance of a course delivered by M. Espinas at the University of Paris, is replete with sound erudition and wise reflection. It is a conscientious work, written in a noble style, in which are unrolled before our eyes the great crises of history which were marked by the affirmation of socialism as a doctrine, and of which the French Revolution and the revolutionary storms of 1848 were the last expression. In opposition to those who see in the French Revolution an individualistic movement, engendered by an individualistic philosophy, M. Espinas does not hesitate to discover in it the practical application by illegal means of the equalitarian philosophy which made its appearance in the eighteenth century, and which implied a collectivist theory of the rôle of the state. He carefully notes the effective consequences of this theory from Mirabeau to Robespierre and Babeuf. Babouvism is not for M. Espinas a freak of history, an accident; it is the natural culmination and last expression of Jacobinism.

It certainly would not be exact to say that the laws which have been bequeathed to the assemblies of the Revolution are laws of socialism; but these laws were not promulgated until the ancient proprietors had been dispossessed, and the upstarts had been invested with their spoils; and these laws are the echo rather of the appetites of the newcomers than of the equalitarian ideal of pure Jacobinism. It would not be exact to assert that the movement of 1789 has done no good by any of its undertakings, and M. Espinas is far from making such an assertion; but he does not ignore the fact that what good the Revolution did do could have been satisfactorily done without it; he belongs, if I am not mistaken, to that

class of historians of whom Alexis de Tocqueville remains the master with his beautiful work, *L'Ancien Régime et la Révolution*, and who have cast off the bonds of Jacobin fetishism, and so been able to comprehend and render sound judgment on the events of the last century.

After the rather lengthy examination which I have given these three important works, I shall restrict myself to a mere mention of the following: *Les Pensées de Tolstoi*, translated by M. Ossip Lourie; *Contributions à l'étude de l'hérédité et des principes de la formation des races*, by J. M. Harraca; *Sanctuaires d'Orient, Egypte, Grèce, Palestine*, by Edourd Schuré (Librarie Perrin).[1]

PARIS. LUCIEN ARRÉAT.

PHILOSOPHY IN JAPAN.

Tetsujiro Inouyé, professor of philosophy in the University of Tokio, read a paper on the philosophical development of Japan before the International Congress of Orientalists at Paris, in his capacity of official delegate of the Japanese Government, and we welcome its publication in the *Hansei Zasshi*, because the history of Japanese philosophy is little known outside of the Flowery Kingdom. Professor Inouyé is known as the best authority on the subject; he has enjoyed all the advantages of a Western education, is thoroughly versed in German philosophy, and quite at home in the philosophical world of England and France.

According to the prevalent opinion, there is no originality in Japanese philosophy; but Professor Inouyé insists on the fact that although the first impulse to philosophising came from abroad, being given by Confucianism and Buddhism, the treatment and further development of these great philosophical and religious movements were carried on in an independent way and produced original thinkers in Japan. We trust, however, that he would nevertheless allow that the first period of Japanese philosophy has been concluded, and that from the present day a new epoch begins. And

[1] The other works mentioned are published by F. Alcan.

there are good reasons to hope, if we may be allowed to express our own opinion, that the philosophers of the Japanese middle ages will be eclipsed by the philosophers of future days.

The first impulse was given to the philosophy of Japan through a study of the commentaries of Shushi 朱子 (Chinese pronunciation, *Chu-tsz'*), the most eminent among the later Chinese philosophers who lived A. D. 1130–1200. He is the classical expounder of the doctrines of Chinese antiquity, and he impressed upon China his interpretation of Confucius and of the old mythical traditions concerning the ultimate ground of existence.[1]

The First Japanese thinker who became acquainted with Shushi's system was Fujiwara Seigwa 藤原惺窩, who lived 1565–1619; he was high priest in a Buddhist temple at Kioto, and was soon convinced that his religion which preached the renunciation of all family relations was wrong; accordingly, he renounced his faith and became an adherent of Confucius. His most famous disciple was Hayashi Razan 林羅山, who distinguished himself mainly by applying the principles of Shushi to the domain of instruction, and succeeded in introducing them as principles of education into the schools of the government.

We may add parenthetically that the old Chinese philosophy is based on the conception of the Yang 陽 and Yin 陰, which are the positive and the negative principles representing the male and the female, heaven and earth, light and darkness, etc., etc., and are commonly represented by a continuous line thus — and - -. The Japanese pronounce the two words *Yo* and *Yin;* the dualistic method of Yang and Yin was systematised into a monism first by Cheu-tsz' 周子 and then by the above-mentioned Chu-tsz' 朱子.

A new and a different line of thought was struck by Nakaé Tôju 中江藤樹 (1608–1678), a follower of the Chinese philosopher Ôyômêi 王陽明 (or as the Chinese called him, 王陽明 Wang Yang Ming), a man of great versatility and unusual breadth of thought, who lived from 1472 to 1528, under the Ming dynasty. For the

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[1] For further references, see *Chinese Philosophy*, by Dr. Paul Carus, Religion of Science Library, pp. 30–35.

benefit of readers not versed in Chinese philosophy, we may add that Ôyômêi (Wang Yang Ming) attempted to reconcile Buddhism with Confucianism in a way quite analogous to that of the Christian sage Thomas Aquinas, who in his day undertook to show the compatibility of the Christian faith and the Aristotelian philosophy, thus combining the religious sentiments of his age with the highest authority of worldly philosophy as then understood. Yet we ought to add that while Thomas Aquinas remained a monk and a saint, Ôyômêi (Wang Yang Ming), was rather inclined to cultivate the practical side of his philosophy, for he distinguished himself as a public magistrate, serving his government in the capacity of governor of several great provinces, and gathering laurels as a victorious general in dangerous insurrections. In 1518 he subdued the rebels in Kiang-si, and in 1527 he punished the savage mountain tribes of the northern Kwang-si provinces.[1]

Nakaé Tôju, an admirer of Ôyômêi (Wang Yang Ming), was not only a distinguished author, but, true to his philosophy, which declares that knowledge and action, philosophy and morals, religious conviction and science, should be at one. He led a life without reproach and is counted among those rare sages who are considered models of moral life. Being a native of the province of Ômi, he is frequently called "The Sage of Ômi."

Among the disciples of Nakaé Tôju are mentioned: first, Kumazawa Banzan 熊澤蕃山 (1619–1691), distinguished as a scholar and diplomat; secondly, Miwa Shissai 三輪執齋 (1669–1744) the author of an exposition of Ôyômêi's philosophy, the "Denshûroku," 傳習錄 which means "Record of transmitting practical morality"; and thirdly, Ôshiwo Chûsai 大塩中齋 (1794–1837), who is to be mentioned later on.

The school of this great Chinese philosopher, Ôyômêi (Wang Yang Ming), founded in Japan by Nakaé Tôju, has always played an important part in Japan through its influence upon the higher and better educated classes of Japanese society.

A third school of Japanese thought was started by Yamazaki

[1] See No. 618 in Mayers's *Chinese Reader's Manual*. p. 246.

Ansai 山崎闇齋 (1618–1682), who was educated in a Buddhist monastery, and became the founder of a new conception which in principle is the most particularly Japanese philosophy possible, for he inclined toward spiritualising the native religion of Shintoism, and became the founder of a new Shintoist sect called the Suiga-shinto. Educated at a Buddhist monastery, he was once with his brother monks engaged in a deep discussion of philosophical topics at night-time. Suddenly his fist came down on the table and he broke out into tremendous laughter. When asked why he laughed, he answered, "I laugh at the extravagance of Çâkya." He had been set to thinking about the underlying philosophy of Buddhism by the doctrine of Shushi (the Chinese Chu-tsz'). If in a Christian country a monk of the Middle Ages had behaved in this way, he would probably have ended in the fire of an *Auto da Fé*. Not so our Japanese monk. He soon abandoned Buddhism and became converted to Confucianism, which, however, failed to satisfy him, and he therefore gave himself up to the study of Shintoism, the nature worship of the ancient Japanese, which he tried to explain philosophically from the standpoint of Shushi's doctrines. After his death, his school divided into three parties, one headed by Asami Keisai 淺見絅齋 (1652–1711), one by Miyaké Shôsai 三宅尚齋, and one by Satô Naokata 佐藤直方 (1650–1719).

A man of great originality is Yamaga Sokô 山鹿素行, who in his capacity as a general introduced a new military system which, after his name, is called the method of Yamaga. Originally the disciple of the above-mentioned Razan, he followed the doctrine of Shushi, but he abandoned his former course and burned all his books, publishing in their place an abridged statement of his philosophy under the title "Seikiôyôroku" 聖教要錄, in which he criticised certain phases of Shushi, without being able to free himself from its main principles. This change in his views became an event in his life, for he was banished from Yedo by the government. He fled to the province of Banshû, in the principality of Akao, where the reigning prince, Nagatomo, received him hospitably and respectfully. Here the exiled philosopher became the teacher of Nagatomo's children, and also of the chief, Ôishi Yoshio, who plays

a very prominent part in the history and legends of Japan, being that nobleman whose forty-seven retainers avenged his death. As common criminals, they would have been handed over to the hangman, but they were allowed to end their lives by the hara-kiri, the famous punishment of suicide which is allowed only to noblemen of rank. The generous treatment of these brave men, and also their attachment to their chief, Ôishi Yoshio, which was well merited by his kindness and justice, may be attributed to the philosophy of Yamaga Sokô, who exercised no little influence upon the thoughts of all these people.

As to the philosophy of Yamaga Sokô itself, we see little or nothing that differs from the views of Shushi (Chu-tsz'). His originality appears perhaps more in his manliness and in the practical application of his moral principles. Professor Inouyé characterises his doctrines as follows: "According to Sokô, the world is the great visible realisation of the two fundamental principles, Yin 陰 and Yo 陽; it is not the product of a creator, but is as it is by necessity; it will continue to exist forever; that is to say, the world is without beginning and without end; there is a constant new formation, and the development is continuous; when one thing is destroyed, another thing begins to exist at the same time. Therefore, there is not a real end, or rather, existence is only a becoming." As to his morality, Professor Inouyé continues: "The principle of morality is not different from the principle of the world. What, accordingly, is the principle of the world? It is the natural law according to which all live without knowing it; those who know it and conform to it consciously are the sages. As to the principle of morality, we must recognise and distinguish humanity from justice; as in humanity there is no limit, we must understand the importance of justice, for only through justice can we know to what extent one ought to practice humanity. The difference between a noble and an ignoble being rests in that which is made the end of life, which may be either justice or personal enhancement. The noble man seeks his personal interest in justice; the other, on the contrary, knows no other justice except personal interest."

Another philosopher of great independence and originality, is Itô Jinsai 伊藤仁齋 (1625–1706). Starting from the Chinese doctrines of the Yin and Yô, he proclaimed that the world principle is primitive energy, which appears in a dual form as the ideal principle called Ri 理, and the material principle called Ki 氣. His monism is more materialistic than idealistic, for he claimed that "The material principle is not contained in the ideal principle, but on the contrary the latter is encompassed in the former." As to his morality, Itô Jinsai starts from the Shushi doctrine, that man's nature is in its origin absolutely good, and that it only will change through the manner of living; but, instead of advising a return to the original nature, this Japanese disciple of the old Chutsz' insists on developing the character according to the principles of humanity and justice. His moral principles have contributed much to the enterprising spirit of the present generation, which sees a possibility of amelioration in the future and would not countenance the reactionary maxims which are so prominent in the doctrines of Chinese philosophers. Jinsai's treatment of philosophy, we are told, is almost modern, and shows much power and independent thought.

The greatest disciple of Itô Jinsai was his son, Itô Tôgai 伊藤東涯 (1670–1736), who as a scholar, although not as a philosopher, is considered greater than his father.

The David Hume of Japanese philosophy is Kaibara Yekken; 貝原益軒 he was known during life only for certain methods of instruction which he introduced into the Japanese schools. He was distinguished by great modesty, and became celebrated as a philosophical writer only after his death through his remarkable book entitled, *Taigiroku* 大疑錄, which means "The Great Doubt." Starting from the philosophy of Shushi, he began to lose faith in his methods, especially as to the doctrine of the ideal and the material principles, the Ri 理 and the Ki 氣. He said: "In the world there is only Ki, that is, energy, which exists in a state of continual transformation; the two opposite principles of the Yin and the Yô are found in this active current of energy. When we consider the ways of this energy which, soon becomes Yin and soon Yô,

we call it Do 道, or reason" (the Chinese 'Tao'), which is the method of man. If, on the contrary, it is regular and well ordained, we call it Ri, or the ideal principle. But the Do and the Ri are one and the same thing in reality; and it is an error to consider them different. The Ki and the Ri too are one and the same. We should distinguish them only as being views from different standpoints, and we must not speak of their separation or combination. But the Ri 理 (the ideal principle) exists only as an attribute of the Ki (the energy)." Yekken, accordingly, makes Ki 氣, or energy, the first principle, declaring that the Ki is the essential thing in the world and the source of all existence.

As to the problem of morality, Yekken appreciates as the main virtue sincerity of heart 眞心; the Shushi doctrine sees in deference or obedience the main virtue, and enjoins that the sentiment of deference must be the basis of all actions. Yekken, on the contrary, asserts that deference is only a means to attain the highest virtue, which is sincerity of heart.

Butsu Sorai, or Bussorai 物徂徠 (1666–1728), drew his inspiration from Jinsai, the materialistic monist mentioned above. He does not enter into the cosmological or ontological promblem, but confines himself to the question of morality. And here he takes a peculiar stand which in some respect resembles the views of the English sensualists of the eighteenth century and their successors. He criticises his predecessor, Jinsai, for believing that morality develops internally through the inner sense of conscience. According to Bussorai, the moral law would originally exist neither in the heart nor in nature; but it is nothing else than a product of our wise men; and he declares that to govern accordingly is the business of the sovereign, and to obey it is the businesss of the people.

The last philosopher to be mentioned is Ôshiwo Chûsai (1794–1837). He belongs to the school of Ôyômêi 王陽明 (Wang Yang Ming), but he expounds the doctrines of his master in quite an original way. He distinguishes between the macrocosm and the microcosm, making the former the prototype and the latter, as its production, finding the essential quality of the macrocosm in the principle of the great void 太虛, which he identifies with the prin-

ciple of heaven. This principle exists in the bamboo as well as in the stone, and it is practically the same when we find it as the great void in ourselves, which is called the *heart* or *soul*. It matters little whether we say that the body is enclosed in the heart, or *vice versa*, the heart in the body; both statements are only metaphysical contrasts; there is in reality no difference. The great void is outside in the body and inside in the heart, and the one as well as the other is nothing else but the principle of heaven. Heaven, therefore, is not only outside, but also inside. In fact my heart is heaven, and all things are contained in the heart. If the heart is free from all base desires, the great void is present in the heart undefiled, which is then called spiritual purity; if the heart is full of base desires the great void is not present, and the heart will then be unable to receive the truly good things of the world. Those men whose hearts rest constantly in the void are the sages, and they can with their greatness of mind guide and support even the vulgar, while the latter cannot endure the sage.

We must add that Chûsai is in some respects also a social reformer; at least he showed his sympathy with the toiling masses by voicing their complaints and trying to improve their social conditions. Having expressed during the famine his dissatisfaction with the Government for not distributing to the starving populace either money or food, he made an appeal in their behalf, but was not listened to. To relieve the poor he joined a conspiracy which was discovered. Having gathered his partisans, most of whom were his disciples, around him, he was attacked and vanquished by the soldiers of the Government, and had to flee for his life. When discovered, he burned himself, together with his son, and died a martyr of humanity.

In a final review of this galaxy of Japanese philosophers, Sokô, Jinsai, Yekken, Sorai, and Chûsai, we are struck with the observation that none of them dared openly to disavow Confucius himself; all of them considered him a model of philosophy, and even when they disagree with his doctrines regard themselves merely as expositors of his views.

There is little metaphysical speculation among the thinkers of

Japan ; most of them are practical and do not leave the solid ground of the realities of this life. There have been Shintoists opposed to Confucianism,—such men as Motoori Nobunaga 本居宣長 and Hirata Atsutané 平田篤胤, who showed a hostility to foreign doctrines, and endeavored to establish a peculiar Japanese philosophy, but upon the whole Confucianism remained the creed of all the philosophical schools; the influence of Buddhism was enormous, but it remained limited to the religious life of the nation, and left all civil instruction to Confucianism.

As to the future of Japan, we have only to add that the present is strongly under the influence of Western civilisation, among which during the last period German philosophy was perhaps most influential.

We conclude by saying that Professor Inouyé is not only a scholar, and perhaps the greatest authority on the philosophical development of his country and of China, but also an independent thinker[1] who may now be considered the main representative of the national philosophy of Japan.

P. C.

[1]Most of his essays appeared as contributions to *The Tekugaku Zasshi.*

CRITICISMS AND DISCUSSIONS.

"THE UNMATERIALITY OF SOUL AND GOD."

A REJOINDER TO AN ARTICLE BY THE EDITOR, DOCTOR PAUL CARUS, IN THE APRIL *Monist*.

Under the above-quoted title, the editor, Dr. Paul Carus, contributed to the April number of the *Monist* a very able article in reply to a criticism of his views by the present writer. So large a field has he covered, and so thoroughly, that a complete reply cannot be compassed within the limits of a magazine article. This article must, therefore, be confined to the discussion of a few questions only, of the many raised by "The Unmateriality of Soul and God."

It would appear that we must follow Dr. Carus to his conclusions, if we grant his premises. But it is in fundamentals that the most unwarranted assumptions of modern science lie,—assumptions which the Doctor seems to have accepted as unquestioned data of reasoning.

The scientist defines matter and attributes to it certain properties, such as gravity, and molecular attractions and repulsions. From the broadest inductions he can make, these properties are assumed to be necessary and immutable. Yet Newton, and other philosophers, both ancient and modern, saw the absurdity of assuming action at a distance, across void space. To explain action at a distance, science has assumed an all-pervading ether. In no other way can it explain gravity, molecular attractions and repulsions, and the transmission of radiant energy, as light, heat, and electricity. Just what the constitution of matter and the ether must be to account for the so-called properties of matter and the phenomena of nature is yet an unsolved problem. But it appears as a logical necessity that the properties of matter must depend, not only on the constitution of matter but of the ether as well. It follows, therefore, that any change in the constitution of matter, the ether, or in the relation of matter to the ether, must result in a change or variation of the properties of matter. The ether is not necessarily infinite in extent; and beyond the limits of our ether may lie another of different constitution, enveloping matter also of different constitution and properties from that of our universe. And since radiant energy cannot traverse void space, the sphere of influence of one

universe could not extend to another, except as their ethers come in contact or are in some way substantially connected. Again, the contact and mingling of the ethers of two differently constituted universes would undoubtedly upset the whole present order of nature. From these considerations it must appear that there is no inherent necessity in the laws of nature, even those most fundamental as known to man.

The only theory which has approximated to an explanation of the constitution of matter and its properties is the theory of vortex atoms. This theory, which has been worked out mathematically by Helmholtz, Sir William Thomson, and other mathematicians, is now quite widely accepted, since it alone attempts to explain, and in part does explain, what has hitherto been regarded fundamental and inexplicable. If this theory be true, then matter is create and destructible. The vortex ring, once broken, is resolved into the original fluid, the common substance of all matter.

Dr. Carus says, "matter is the sense-perceived." Very good; but the correlative proposition, that the not-sense-perceived is not matter, the Doctor seems not to accept. Neither the ether nor the original fluid of the vortex-atom theory offers any resistance to a body traversing them; they have not mass, as appears in matter by its inertia; they have no attractions and repulsions such as are observed in the gravitating and molecular forces of matter; they cannot manifest themselves in any way to the senses; they can appeal to reason only. They are not, therefore, matter in the sense employed by physicists; and in this discussion I shall confine the terms matter and material to the sense-perceived.

If spirit be compared to the ether or to the original fluid, the substantial essence of matter, spirit is not for this reason to be regarded as "attenuated," or made of a "nondescript gas" as Dr. Carus supposes. The ether and the original fluid must be regarded as substantial, even as much so as steel, or the densest of metals, platinum; since a body of matter is to be conceived as a congeries of vortices in the original fluid. Nor is it a tenable hypothesis, as he suggests, to suppose the atoms of matter to be mere condensations of the ether. Even if we suppose the ether to be millions of times more attenuated than hydrogen, itself more than fourteen times as attenuated as atmospheric air, the planets could not maintain their positions in their orbits, traversing such a medium with a velocity ranging from three to thirty miles per second. The frictional resistance of the ether would cause them to move in observable descending spirals toward the sun. We must premise the ether to be without mass, or inertia, or it fails; since the most careful observations reveal no resisting medium in the interstellar and interplanetary spaces.

The Doctor's soul of steel, which he prefers to one of "nondescript gas or ether," would be a very ponderous and inert one, indeed. Matter is tied down by gravity and inertia. To translate it in space requires force proportional to the mass, and time proportional to the square root of the distance. An "ether-soul" as substantial as steel or platinum could be translated in space instantaneously,

and with the application of an infinitesimal force; since gravity and inertia are properties of gross matter only, and can be no hindrance to the movements of an entity not material, nor constituted as gross matter.

The Doctor says, "energy is resistance and that which overcomes resistance." Now, I am aware that certain scientists have said it is only necessary to assume matter, ether, and motion to account for all phenomena. They have banished force from the universe. But they classify energy as potential and kinetic. The latter only is the energy which they can observe and measure; the former is merely a term to hide ignorance as to what has become of energy observed to appear and disappear under certain conditions. To illustrate the point which I wish to make: Suppose there be two bodies only in the universe, of equal mass and in contact with each other. Let them be set in motion in opposite directions with a velocity just sufficient to overcome their gravity for each other. In obedience to physical law they will come to rest at an infinite distance from each other, at which distance their gravitating tendency will be zero. Query: What has become of the kinetic energy with which they started? To say the energy has become potential does not help us. At rest at an infinite distance from each other, and gravity nil, they will never return to their original positions to reproduce the kinetic energy with which they began their flight. To say that the energy is communicated to the ether is conceivable only with some such hypothesis as the "ultramundane corpuscules" traversing space in all directions with infinite velocity, as proposed by Le Sage; in which case the kinetic energy of the bodies would be found in the corpuscules which rebound from the anterior surfaces of the moving bodies. But the difficulties encountered in attempting to explain potential energy without the factor, force, are so great that it must be now regarded impossible; force is as necessary an assumption as matter, ether, or motion. And this force we must conceive as something distinct from matter and superior to it. Force we must premise as the antecedent cause; energy, the consequent. Energy is matter in motion; force, that which produces or destroys motion in matter. Take from matter the properties which we ascribe to it, and matter is no more; but still it is not vacuity; there is the substance (*sub stans*) remaining. And we can conceive of force applied to substance as creating and sustaining matter and the material universe.

Force must be one of the attributes of spirit; self-direction, or will, another; and consciousness, the third. The universal spirit, the universal self-directing power, or force, the universal will which directs all, the universal consciousness which knows all, must be none other than God. In these fundamentals the views here expressed cannot be widely different from those expressed by Doctor Carus.

Yet there seems to be a vital omission in the Doctor's philosophy, or in the statement of it. All that is objective and mechanical is given prominence; while the subjective is ignored or passed over as unimportant. I do not believe, as the Doctor erroneously attributes to me, that the soul is the "substance in which the system of ideas is impressed"; but, rather, that the soul is the creator, the impres-

sor of ideas,—that matter and ether, as well as the substance of the material, whatever that may be, are passive, inert, unconscious; while soul is active, self-directive, conscious.

Doctor Carus makes much of form; but form is objective, though not material. There are myriads of forms in the universe, and they represent truths which man's soul can perceive; but that they constitute soul his consciousness denies. The tracing of a geometrical figure upon a material surface cannot perceive, but is perceived by a percipient soul; the form is objective. The same form abstracted from the material and traced in vacuous space is none the less objective,—is inert, unconscious; and were there no conscious ego as percipient, that form is as though it had not been. Light is an objective truth, or fact; but if there be no eye, or sentient soul behind the eye, then is light as darkness.

The Doctor defines soul as "a system of motor ideas, i. e., of meaning-endowed symbols depicting the objects and relations of the surrounding world." It must be objected to this definition of soul that it is purely objective, utterly ignoring the subjective, conscious ego. The will calls up in memory ideas which we have had at various periods of our lives; but consciousness distinguishes these ideas from our proper selves—the ego. We contemplate them only as experiences, not as ourselves. To speak of ideas as "motor-ideas" does not help the matter, unless there is assumed behind and controlling all, the conscious ego, which is the motor, or mover. By no such objective explanation can we account for sentiency, will, consciousness, the three attributes of the ego which baffle explanation by any shifting kaleidoscope or concatenation of forms. The importance of form cannot be overestimated objectively; but the former, the shaper, the creator, of form is something distinct and separate from any form or anything objective whatsoever; though it should be remembered that the ego itself, as an object of contemplation, becomes objective, the ego forming an image of self to become the object of contemplation of the real self.

The Doctor minimises the importance of the ego, the "thisness," the "preservation" of which, he says, "is not conformable to the laws of existence." If this be so, then the formed is of more importance than the former; the ego, or "thisness," which conceived and constructed the complicated machine, is comparatively unimportant, and the machine itself, the all-important. I am rather forced to the conclusion that the ego is all-important, that it overshadows infinitely every thing objective—or any particular "suchness." A work on geometry is full of ideas and valuable truths systematically arranged; but those ideas are no more a soul than the machine which I have constructed is myself.

The very laws of thought enforce upon us the conviction of a certain dualism —the "me" and the "not-me." If we could conceive a state in which there is but the one thing, or being, in the universe—a oneness in God, activity of the universal oneness must by that activity create an image, or object. We can conceive of the universe only as the objective of the duality of which God is the subjective. So

the human soul, which must be conceived as in essence the same as the universal spirit, but differentiated from it as a separate and distinct will and consciousness, cannot act without being a creator of an objective world for itself. In every mental process, from the lowest degree of sensation to the highest form of ratiocination, the mind has ever present two kinds of phenomena, which cannot be conceived as being in the same order of existence. Before everything else, and without which there can be nothing objective, the fundamental fact of all knowledge and existence is consciousness. It is subject, cause, self-existent creator. But no sooner is there consciousness than there must appear, as the necessary correlative, the object, whether it be material or immaterial, or no more than the mental image of self. It is the objective effect of a subjective cause—the necessary creature of its creator. This reasoning must apply to man and every sentient being, the finite offspring of the Infinite, as well as to the Infinite, or First Great Cause. If consciousness be, it must distinguish self, the percipient, from the perceived; self, the cause, from the effect, or caused; self, the contemplative subject, from thought, the conceived objective. The passing phantasmagoria of our physical environment impinge on the sensorium, inducing a succession of ideas; but the physical environment counts for nothing, if there be no ego, no soul, self-active in sentiency and percipiency. And self-conscious and self-active will may cut off the external cause of idea-inducing environment and establish a new chain of ideas, independent of environment. It would seem, finally, from the point of view of the present writer, that monism as a philosophy can be possible only for those individuals whose training has been in the consideration of the external, material, and objective phenomena to the exclusion of the subjective and introspective. He who views matter, taking note of external phenomena only, sees but one side of the shield with the emblems engraved thereon; he who views by introspection sees a different set of emblems, apparently irreconcilable with those seen from the other point of view. There appears to be a reconciliation between these two orders of phenomena only in assuming a dualism of material substance and phenomena, and of spiritual substance and phenomena, both united in living beings, such as we know with material bodies. If you ask me to describe the essence or substance of spirit, I reply that it cannot be done; we can know spirit only by the phenomena which it presents to our consciousness. But in this respect we are as well off as in defining matter. Who can describe the essence of matter? Does it consist of hard, indivisible atoms, as proposed by Dalton? If so, how can we explain its numerous and seemingly impossible properties; its gravity and its molecular attractions and repulsions? Does it consist of the vortices of Helmholtz and Thomson? If so, what is the nature and the substance of the original fluid? What is the constitution of the ether, so necessary for the transmission of radiant energy? We strike the border-land of the unknown by investigation in one direction as quickly as in the other. The ultimate truth in either direction transcends human powers.

An immortality which consists in the mere preservation of our ideas would be

a kind of immortality, indeed, but not such an immortality as humanity everywhere longs for. Again, if the human soul at death be merged into the universal soul, the universal consciousness; this still is not such an immortality as the human mind demands. The soul, which has been created by God, differentiated from him, must maintain its identity, its self-will, its self-consciousness, to be immortal in the sense that man's religious nature requires.

If "the whole combination of man break down utterly at death," then can there be no immortality. But if the self-conscious, self-active ego be separable from its material habitation and capable of maintaining an independent existence, then is the immortality of the soul not only possible but probable. With this view the doctrine of successive incarnations and reincarnations from the remote past, as taught by Theosophists, is not absurd, though, doubtless, unverifiable and speculative. Nor is communication with the spirits of the dead impossible. I must contend, therefore, that the ideas of such religionists cannot be cast lightly aside as infantile and lacking philosophic basis. It is not quite fair to say that believers in a spirit substance are so because of their lack of intellectuality. Wallace, Crookes, Lodge, Sedgwick, James, Hodgson, and many others in the very first rank of scientists, both in this country and in Europe, can scarcely be charged with lack of intellectuality. Camille Flammarion has also made a wide reputation both as a scientific observer and as a literary man. They are all believers in spiritualism, i.e., in a spirit substance superior to and independent of matter. And these men have come to their conclusions after many years of painstaking and careful investigation of psychic phenomena, by the true scientific method, the inductive process. Those who have not investigated psychic phenomena, and those who have investigated but superficially, are not in a position to pass judgment upon such phenomena, and the possibility of a soul independent of and separable from the body.

Notwithstanding the Doctor's scepticism in this direction, I believe there is a great field for investigation in hypnotism and spiritualism. It is true that hypnosis is but a modified form of ordinary sleep; the one artificially induced and controlled by suggestion, the other naturally induced, the condition of alter-suggestion being to a large degree absent. Yet, that the mind in normal sleep is to a certain degree controllable by suggestion, is shown by the direction given to dreams by the environments of the sleeper. Slight noises or movements in the room may induce dreams whose character is determined by such noises or movements acting as suggestions. But the mind of the sleeper is more completely controlled by suggestion in hypnotic sleep; and, for this reason, hypnosis is far more favorable for psychical experimentation than normal sleep. That one person, by mere effort of will, may call another who is miles away, is not, perhaps, evidence of spirit translation in space; and Doctor Carus would say, perhaps, is not remarkable, knowing what we do of telegraphy and telephony. But the phenomenon is now certainly beyond explanation on physical principles. To direct a subject in a state of hypnosis to go to a distant place, where he has never been, a thousand miles away,

and to make a careful examination of the premises, the persons there, and what they are doing, and then to get an immediate report, which no one present with the subject knows to be true, but which is afterward verified, can seemingly have no explanation but in the independent action of the spirit from the body. Other experiments, carefully made and repeatedly verified under test conditions, by investigators above the suspicion of fraudulent intent, seem to have established beyond a doubt that the soul can translate itself in space instantly, and that space and material obstruction are no hindrance to its action. And if the soul can leave its body in a state of rigor approximating death and go from place to place on this planet, actually report what it sees, and requiring no appreciable time for its translation from one point to another, however distant, it furnishes indubitable proof of the soul's independence of the body. While the phenomena of hypnotism and spiritualism are now scarcely to be separated and distinguished from charlatanry and fraud, throwing doubt upon the matters sought to be proved by them, for that reason; yet, such has been the history of other sciences. From the quackery of astrology has come the exact science of astronomy. The alchemists, with little truth and much deception, have given us one of the most useful and wonderful of sciences, chemistry.

It is proper for me here to say that I have made but slight investigation of the phenomena of hypnotism and spiritualism; and for this reason I hesitate to deny, and am more inclined to believe, when such a brilliant array of scientists as make up the London Society for Psychical Research, and its American branch, testify uniformly to the truth and character of the phenomena, though differing somewhat as to the explanation of them; and when, too, many of the investigators have come to their conclusions after more than thirty years of careful investigation. These phenomena should be investigated in the true scientific spirit and method, under strict test conditions; and then, if what investigators have apparently shown to be true become established truths, they are most important. For they will show the soul's power to exist independently of the body, and will give probable evidence of the soul's immortality as a conscious ego.

And now a few words as to the philosophy of evolution. As taught by ultra-materialists, it is the most absurd unreason. From the primitive atom to man, the final link of the chain, it is a series of assumptions. It assumes the atom and its properties; it assumes motion; it assumes regular and mathematical arrangements of atoms in molecules; it assumes life, sensation, consciousness, and will, in succession,—and these without a sufficient reason upon which to base such assumptions. It finds certain facts and correspondences, notes the *modus operandi* of nature, arranges the phenomena into a series, and says: "See; so things become, according to law." Its advocates apparently do not see the absurdity in assuming, continually, effects greater than the causes producing them. To assume God to be the law, the form in which things shape themselves, does not remove the difficulty. If evolution be accepted, it must be merely as the mode of working of an infinite,

all-wise, and all-powerful Creator,—a God immanent in nature, by whom all things exist and are upheld, and in whom all creatures live, move, and have their being. Evolution as a mode of the Creator may be a tenable hypothesis, and will doubtless be proven true in some form; but it can teach us nothing of the causes which underlie nature; it may give us the "how," but is silent as to the "why." The old question of the ancients, "Which was first, the egg or the hen?" is as pertinent to-day as ever. The difficulty is not eliminated, though it may be obscured, by separating antecedent from consequent by an infinite series of means and by infinite time. *Ex nihilo, nihil fit.*

I would say in conclusion, that it is possible that I have misunderstood some of the views expressed by Doctor Carus in his article; and, if so, allow me here to disavow any intention of misstating his position. Some statements, indeed, I have been unable to reconcile as consistent with other positions taken. For example, he says:

"When we understand whence we come we learn also whither we shall fare. We come from the souls of the past, and our soul will continue in the souls of the future. There is the same identity between the souls of the past and the future as there is between the soul-life of my own yesterday and of my own to-morrow. There is a continuity of form, and there is a preservation and transference of the various particular forms which constitute our suchness, our character, our personality. Former souls are not strangers to me. They are soul of my soul and parts of the same spirit-life which at the present day pulses in my brain. Nor shall I remain a stranger to the souls to come. There, within the souls of future generations, not somewhere in the sky, is the kingdom of God of which Christ spoke. Heaven is not local, not material, but spiritual. In the soul-life of mankind are the mansions in which there is room immeasurable for all of us. There we shall be preserved with all our peculiar idiosyncrasies in our personal identity."

If consciousness and memory be extinguished at death, how can there be the "same identity between the souls of the past and the future that there is between the soul-life of my own yesterday and my own to-morrow"? As applied to individuals, this would seem impossible. If applied to nature or a people as a whole, it would likewise seem impossible. I can imagine something of an analogy between the birth, growth, decay of a nation or people and that of an individual; but it is a mere analogy. I cannot imagine a national consciousness, except in a figurative sense, as applied to the sum of the individual consciousness of all the members of the state. Likewise of memory and will, as applied to national life,—the mere synchronous action of individual wills and consciousnesses. And that "we shall be preserved with all our peculiar idiosyncrasies in our personal identity," seems inconsistent with the destruction of consciousness, will, and memory, the very essentials of personality.

CHARLES H. CHASE.

IN REPLY TO JUDGE CHARLES H. CHASE.

Judge Charles H. Chase enters into a great number of questions of physics and metaphysics into which I do not dare to follow him; nor do I care to, for these questions have nothing whatever to do with the philosophical problem as to the

nature of God and soul. We may define matter as the sense-perceived, and in that sense would have to deny the law of the conservation of matter. For we can very well understand that this crude sense-perceptible material, viz., gross matter, has originated by condensation from some thinner material, such as we understand ether to be. Whether or not the ultimate unit of material bodies can be analysed into atoms, I do not know. I have my grave doubts as to the existence of these philosophical atoms. I only know that the atom of the chemist is a unit representing the proportions in which the elements combine. The chemical atom as an arithmetical unit of proportion is an undeniable fact, but the philosophical atom as a concrete little body, be it in the shape of a mathematical figure or of an ether vortex, is a pure assumption which for certain purposes recommends itself, but is after all purely fictitious and a product of the scientific imagination. I am very careful to avoid all these hypotheses of modern science, and if ever I should introduce them I would do so only as illustrations or as statements subject to revision.

However careful I try to be in avoiding positive statements concerning hypothetical physics and fictitious metaphysics, I would not hesitate to reject such traditional views of matter and spirit as reify abstract terms, by distinguishing between imaginary things-in-themselves and the properties with which these things are said to be endowed.[1] Judge Chase believes that when we take from matter the properties which we ascribe to it, matter would be no more, but still he adds, "there is the substance (*sub-stans*) remaining." Similarly Judge Chase believes force to be some independent thing different from energy of any kind, and this force is mysteriously supposed to be the cause of motion, whatever that may mean. My views of physics are so radically different that I should have to stop Judge Chase on the definition of almost every word he uses.

The main question on which every religious and philosophical difficulty hinges is the nature of the ego. I am far from minimising the importance of the ego. But I understand that my conception of the ego differs from that of Judge Chases, and I must insist that the importance of the ego is not constituted by its mere concrete existence, by its "thisness," but by its character and nature, viz., by its "suchness." Whether or not an ego or a human personality has any moral worth or not, depends on the motives by which it is swayed and the purposes which it pursues. That is to say, the worth of any personality depends on its form, and form is suchness, not thisness.

Consciousness, no doubt, is, as Judge Chase claims, "the fundamental fact of all knowledge." But consciousness is not an unanalysable fact. Consciousness is of a greatly complex nature; and the subjectivity which appears in consciousness is undoubtedly too of paramount importance; but we can learn to appreciate the nature of consciousness only by studying the objective forms of which the subjective processes of consciousness are concomitant phenomena. Introspection is

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[1] See the author's article "On Things in Themselves" in *The Monist*, Vol. 2, p. 225.

very valuable for a comprehension of objective events. But *vice versa*, observation of objective phenomena is the best method for acquiring a clear interpretation of our own subjective nature.

The main contention of practical importance of Judge Chase is that "one person by mere effort of will may call another who is miles away"; that he can transfer his soul and examine carefully distant premises, etc., etc.; in a word, that phenomena such as have been investigated by the members of the Society for Psychical Research are taken for granted. Here I cannot follow Judge Chase and can only say I must wait until some actual evidence of such facts has been forthcoming. All I can say at present is that all the cases which I took the trouble to investigate were either founded on insufficient evidence, or were made by men who, judging from the accounts, were themselves obviously uncritical. Even famous men such as Wallace, Crookes, and others, have occasionally developed an astounding credulity. The best cases that have come to my knowledge are instances of palpable self-delusion in which chance coincidences enter now and then.

I conclude these remarks by stating that I should have to repeat an exposition of my whole philosophy in order to show all the differences which obtain between my own views and Judge Chase's arguments. If we understand the "how," we know the "why." There is no other "why." The question as to the priority of the egg and the chicken has in my opinion been answered long ago and does not contain any metaphysical puzzle;[1] that the effects should be greater than the causes producing them is quite natural as soon as we understand that the law of causation is a law of transformation. The equation between cause and effect is merely an equation of the total amount of matter and energy before and after, but it is not an equation between the worth of the product and the labor by which the result has been gained. It is true that the stream cannot rise higher than its source, but it is also true that evolution is not a stream, for evolution is constantly rising higher and higher. The labor of the present generation is added to former generations and thus an actual progress is produced in the most natural way.

It may or may not be that Judge Chase has misunderstood some of the views expressed by me in former articles, but one thing is sure that unless he understands the makeup of our present consciousness from the soul-life of the past, and unless he realises that we to-day are the product of the exertions of past generations, he will not be able to understand how the present will continue in the future as an indelible factor of all the times to come. So long as he still adheres to his wish of having a soul that consists of spiritual substance I do not venture to expect him to appreciate the deep importance of the preservation of the soul in the sense in which I understand it. So long as his conception of the soul is its thisness, not suchness, and its existence as a substance, he will not appreciate that the preservation of its suchness will involve the preservation of its idiosyncrasy and personal identity. P. C.

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[1] See *The Open Court*, No. 31.

THE PERSONALITY OF GOD.

I was very pleased to see in the October, 1897, number of *The Open Court* a brief notice of some of my criticisms of your views, and I am very sorry that both my work and domestic matters have deprived me of the opportunity of replying before now. There is a very great deal that I would like to say. But I feel that my only chance of finding opportunity to reply at all is in limiting myself strictly to the question at issue.

You are willing to "grant the possibility of the animation of the universe with an ego-consciousness such as is assumed in" my proposition referred to by you, but you would call it, not God, but Brahma, world-soul, or great spirit; and yet you maintain that it would be subject to God. Or if this world-spirit is to be called God, then you maintain that there is something higher than God, and the belief in God is a matter of small concern. *Your* God is Law.

Our difference is to some extent a mere difference in the use of terms. I lean more to the Pantheistic conception of God than you do. The world-consciousness is subject to law, of course. And so is mine. God acts by law. And so does every man. A man's law by which his actions are governed is his character. And all God's behaviour is also of a very definite character.

But I do not limit the term God either to the world-ego and say that this world-ego is yet subject to universal law—neither do I apply the term exclusively to the universal law, and say that that is above all things. My God is both law and ego together. We see in man that his actions appear to be controlled by a conscious power, though that power itself works according to law. Why not in God also? Why divorce activity from consciousness in the macrocosm when in the microcosm they are inseparably united? I, Wilkinson, am not merely the laws that govern my actions, I am the conscious being also. I am I. And what is God? I am that I am. You may say that law is the superior part of my being; but it nevertheless is but a part, it is not the whole. And so with God.

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The belief in Brahma or the world-soul is, you say, a matter of small concern. Be it so, for the sake of argument. It is nevertheless a question of fact. The question is—what is God? what are the attributes of God? Is there law only? or is there consciousness as well?

The answer to this will, I feel, be found in the answer to the question, what is man? And there is one venerable old stumbling-block and one only which obscures the solution of both questions.

What is the relation between man's consciousness and man's actions? Has man's consciousness any power to interfere in the events of his life? If consciousness plays no part in our life, then also we may conclude that the universe could get on quite well without it.

The question is one in which it seems to me there is no room for opinion at all. It is a question to be decided by exact science—by mathematics.

When we find by observation a particular and constant relation between states of consciousness and events that follow them—when we find in an infinite number of instances that an event occurs immediately after the idea of the event had been formed in the mind of a conscious being, then we are justified in inferring that consciousness is a true cause of events—is capable of originating motion. Perhaps the *reductio ad absurdum* argument is even more forcible—try to imagine that all the events of the human world would have taken place just the same if consciousness had not been there.

Mathematicians and scientists generally have objected to this conclusion because it seems to them to be inconsistent with their pet version of the principle of the conservation of energy. That, however, is apriorism—an attitude of mind to be eschewed by scientists.

It is coming to be admitted by scientists, despite their *a priori* convictions that the movements of the animal world would not go on just the same if they were not subject to the control and direction of consciousness. It is coming to be admitted that consciousness is not a mere spectator of a lot of movements which are altogether beyond its control. Are the physical processes, asks Tyndall, complete in themselves, and would they go on just the same if consciousness were not involved? And the answer from which hard-pressed science finds no escape is—"No!"

There is another circumstance which hinders the acceptance of this idea of the connexion between consciousness and motion. At first the idea seems almost unthinkable. And although the unthinkableness of an idea is no proof that the idea is not true, still if any truth does seem unthinkable it is as well in the interests of science to get that unthinkableness removed.

In this case, I think, the unthinkableness arises from a wrong *a priori* notion of what motion actually is. If we make mere motion our first fundamental idea and then try to imagine that consciousness is a mode of motion—it is unthinkable, we can't do it. But it is easier to imagine that it is a property of all motion to be in some relation to or connexion with consciousness.

The idea of *force* as a connecting link between the two ideas of consciousness and motion somewhat assists us in imagining the association of the two.

The common conception of motion is simply change of place, and, truly, in the abstract, that is all it is. But why should any matter ever change its place? Let us give up the idea that it is an inherent property of matter to move. Let us imagine that there can be no motion without force, that is, something to cause motion—that a world could not have any motion in it unless it also had in it something that could cause motion—some force, or forces.

Now it is not difficult to conceive that some force is will—i. e., the effective wish of some conscious being. A conscious being or soul exerts will-force, and

thereby causes matter to move. That statement is intelligible. It expresses relations between mind, matter, force and motion which are thinkable. We do not identify motion and consciousness. We merely say that they have something in common, namely force.

It is not thinkable that a body merely by being first in one place and then in another could become conscious. But given consciousness, it is thinkable that an entity possessed of consciousness could in virtue of that attribute exert a force so as to move itself from one place to another, or so as to impart motion to another entity. Mere change of place is nothing. Why should an atom or entity become conscious by being in one situation in space rather than in another. But suppose that this change from one situation to another cannot be brought about but by the exertion of some definite agency or cause of motion, some x, some entity that corresponds to what we call force. This altered conception of the nature of motion introduces a new factor into the events of the world. We have not merely matter, first in one place and then in another, but besides, a something that causes that change of position from one place to another and without which the change of position could not occur. Motion in the abstract is nothing. It is no distinct entity. To speak of matter and motion only is not to speak of two things, but of one, namely matter, now in one place now in another. We have merely a change of state on the part of the one entity, matter. But to speak of matter and force is to speak of two things—matter and somewhat else. Very well then, given the distinct entity called force, may it not have any other attributes besides the one of causing motion? We can conceive, for instance, of its having some connexion with consciousness.

But admitting this connexion between consciousness and motion, admitting that animal movements can be altered and controlled by consciousness, we cannot halt here. From this conclusion yet another inevitably follows. There is yet another concession which scientists will find themselves forced to make to spiritual philosophy.

If consciousness can control motion then consciousness and motion must have essentially something in common. And it would be unreasonable to regard animal movements as an altogether exceptional case—to suppose that the connexion between motion and consciousness which is apparent in animal organisms is something accidental and at variance with the general order of things. To have a consistent world-conception we must suppose that all motion is either directly or indirectly associated with consciousness—that it has something to do with it—or has had at some previous period of its history, and is capable at any time of being put in connexion with it and brought under its control—that all motion has in it something essentially mental—in short that there never could be any motion which was altogether a thing apart from mind, that in a world in which there was no mind there would in consequence be no motion, as the two entities are parts of one whole.

This is not to say that all finite objects, rocks, stocks, etc., because they are full of internal motions have therefore consciousness such as man has; as you say, there is no consciousness in the planets as such. Yet in any grand system in which there is motion, we must infer that there is mind also which has something to do with that motion. No motion without mind—no motion but what has been and can be again connected with mind. And no mind but what produces motion.

This, to me, is *proof* of the existence of the cosmic soul—the great spirit—Brahma.

The only alternative theory is that some of the motion of the world is produced by mind, and that other motion never has had nor could have anything at all to do with mind. But this is contrary to monism; it gives us an inconsistent world conception; it involves an unwarranted multiplication of hypotheses—two kinds of motion. Either no motion at all has anything to do with mind, or all has.

The problem of spiritualism is to my mind, on its scientific side, principally a problem in mechanics. And it is from that point of view that I criticise the theories of all anti-spiritualists, including yourself.

I think I understand your position. Your God is law. Law governs the universe.

We have first the simple laws of mathematics—the multiplication table, the postulates and axioms of geometry. Then mechanical laws—the postulates and axioms and laws of the science of motion. Then physical laws—the laws of heat, chemistry, electricity, magnetism, gravity, etc. And finally æsthetic laws—or the laws of the operation of consciousness.

But let us just see what law is, from the point of view of mechanics.

Let us consider the universe, to start with, simply as matter in motion. Next we observe the various internal motions of the universe to be subject to certain laws.

Now if in any system of bodies in motion we find that the motions as a whole present a certain definite character—that they appear subject to certain definite laws or limitations and to constantly produce certain definite characteristic results—then we must infer (1) that those motions are subject to some controlling force or power and (2) that that controlling power itself is not dependent on those motions or a result of them, that relatively to them it is purely cause and not at all effect—what you call a *primum movens*—or rather the prime motor that is behind the *primum movens*.

This is a conclusion from which, to my mind, there is no escape; though you, in common as I know with most scientists and philosophers, object to it. But it strikes me with a force of conviction. I feel confident that it will always maintain itself against all attacks. I am not an apriorist. And yet one cannot but feel sometimes what Kant felt so strongly—the tremendous force of an *a priori* conviction. And I think in some cases it is simply the result of a sort of prophetic mental effort, an imperfectly expressed, embodied, or worked out process which exists in a con-

densed form somewhere in the back-ground of the mind—in short what Tyndall refers to as the scientific imagination: Still I want no man to accept proof on these grounds only—however confident I may be inwardly myself of being able to maintain my position. I will justify my confidence.

Now, if I understand you rightly, your contention is that in the case of the physical laws we have an instance of law, or determining influence, without any *primum movens*; and therefore why not also in the case of consciousness. In its relation to mechanics,—in its relation, I mean, to the movements of bodies,—in the manner in which it determines motion, you place consciousness on the same footing as the physical laws. And you contend that the hypothesis of any *primum movens* is in either case unwarranted.

Now this absence of any *primum movens* in the various movements of unconscious matter is just the very thing that you scientists must prove. So far it is pure assumption; and, to my mind, all indications are decidedly against it. The mere fact of the movements of matter being subject to any laws at all is to my mind proof that there is a *primum movens* somewhere.

It is true that reason demands that we should reduce the number of assumed causes of motion to the least possible. We must not assume anything more than is really warranted by observed facts. It is in recognition of this principle that philosophers have framed the theory, largely backed up by science, of the interchangeability of all the various forces of nature. We thus do not require a separate cause of motion for each observed physical law. We have not one cause of the movements attributed to electricity, and another cause for the movements attributed to gravity, and another for those which appear to be produced by heat, etc., etc. But all these apparent forces, or causes of motion, are reduced to one—namely motion itself. Heat, electricity, gravity, chemical attraction and repulsion, etc., are all regarded as merely modes of motion—not as causes of motion which are themselves independent of motion. They are most of them regarded as different kinds of ethereal vibration. They have, it is true, certain peculiarities which distinguish them from motion in general. For instance they produce phenomena of attraction and repulsion subject to the law of inverse squares. We have, however, no positive reason for believing that these peculiarities are not explicable as merely the results of motion, or that they do independently condition these motions.

But admitting all that—what is our position?

We have not completely eliminated all such thing as first cause from the motions of matter. We have largely reduced the number of apparent causes by breaking down the distinction between mechanical laws and physical laws. But it is a false idea to imagine that this leaves us with nothing but matter and motion—matter and change of place—in short, matter only, now in one place and now in another.

It is very evident that there is matter and a very definite something else besides—not mere change of place, something more definite than that. There is this:

The changes of place are *still* subject to certain very definite laws. What about Newton's laws of motion? Why is it that to every action there is an equal and opposite reaction? Why on earth should there be? Where does the reaction come from? Is it caused by the elasticity of bodies? What then is elasticity?—why are bodies more or less elastic? Again, why is it that when elasticity is perfect the angle of incidence is equal to the angle of reflexion? What a coarse complicated jumble of assumptions there is in what passes among mathematicians as the proof of this theorem! There is no proof at all. The movements of matter are found by observation to be subject to certain laws, and it is also found that certain of these laws follow necessarily from certain other laws. But that is not proof. You may take any observed law as an assumption, and deduce the other observed laws from it. But some one of them has to be simply assumed; and whichever one you take, you have no further explanation for it—you have simply to accept it as a fact. In text-books of mechanics the law that the angle of incidence is equal to the angle of reflexion is deduced from the law that every action has an equal and opposite reaction (together with a few other assumptions), and the latter is regarded as too obvious to need demonstration. But it is not at all more obvious why every action should have an equal and opposite reaction than it is why the angle of incidence should equal the angle of reflexion. And we might just as well have started with the latter fact and have deduced the former from it. There is no proof in either case—merely different interrelated facts. The so-called proof of Euclid's prop. 32, book I. stands on a similar footing. All these little glossed-over flaws in our account of the universe point to the existence of hidden things that we know nothing at all about. And the hidden thing in the mechanical universe, to my mind, can be nothing else than your *primum movens*, with some distinct cause of motion behind it.

Something is hidden too behind the first and second laws of motion. What is inertia? Why should it take more force to move a large mass than to move a small one?

At what junctures that cause of motion comes into action, and what it is, might be hard to say. It is not necessary to imagine two distinct causes of motion, one that controls movements in which consciousness is involved, and one which controls movements in which it is not. The latter might be in some way more or less distantly or indirectly connected with, or related to, or arising from, the former. But in any case, the presence of law in the movements of the inanimate world, to my mind, indicates clearly the existence somewhere of some real cause of motion.

But again—let all that alone. Even suppose for the sake of argument that the *primum movens* and the first cause behind it *have* been eliminated from the movements of the inanimate world—how has it been done? Simply by breaking down the barrier between physical law and mechanical law—by reducing all the apparent forces or causes of motion in the physical world to motion pure and simple. If there is no *primum movens* or first cause in the movements of bodies under the in-

fluence of the hypothetical forces, gravity, etc., it is because all such movements are really simply the necessary mechanical resultants of previous movements of some sort in matter. That is the only way in which you can eliminate the *primum movens*. And the peculiarities of these movements can only be attributed to the extremely complex internal structure of these simple looking bodies, and the consequently extremely complex nature of the movements that result in these electric, magnetic, and other phenomena.

But you, for one, I know will not be prepared to explain away the apparent control of consciousness in the movements of conscious beings by any similar process of reasoning. You will not admit that the movements of all conscious beings are in some way, despite appearances, the necessary mechanical resultants of some previous movements of matter. To do that is to deny that consciousness has any control over the movements of conscious beings,—to deny that consciousness determines those movements in any way or has anything to do with them,—to place consciousness, as did Professor Huxley, in the position of a mere spectator.

It is impossible to lump consciousness in the same category with the hypothetic forces, gravity, electricity, heat, etc. The latter may be all mere modes of motion. But nobody can pretend to believe that consciousness is. Consciousness is not a hypothetic force. It is not a hypothetic anything. We do not assume its existence for the sake of argument. It is not an x that stands for the imaginary cause of some unexplained phenomena. Our knowledge of its existence is based on independent grounds. Electricity and the rest may all disappear into mere motion, but consciousness will not go into the melting pot. Consciousness is consciousness. We know that it exists. The word stands for a very definite and real idea. The question as to whether or not consciousness is a force—i. e., controls motion—is quite a separate question altogether from the question of its real existence. And to the former question there can be only two answers,—yes or no. There is no wriggling out of the dilemma. And the many who will persist in trying to do so only make—I say it wholly in sorrow—unedifying spectacles of themselves,—instance, Professor Lloyd Morgan in his article on "Animal Automatism and Consciousness" in the October number of *The Monist* for 1896.

I think people have only got to realise how narrow the issue is to make them choose what I should call the right horn of the dilemma,—i. e., not the wrong one. It is because they do not realise this that they invent all these hollow theories which seem to avoid the question. Professor Huxley and Antonio Llano are, I believe, the only men known to fame who have been brave enough to decisively choose the wrong horn. And even Huxley still retained ideas which were inconsistent with his choice. And I doubt not Antonio Llano does too. In my opinion he was rewarded for the honesty of his choice by a victory over you in your discussion with him on the possibility of ethics. Yet I cannot believe that any man would not draw back when he fully realised where the wrong choice led him to.

And to the man who can see, all the seeming difficulties and objections vanish

away like mist. The principle of the conservation of energy is not at stake. The amount of energy in the universe is still constant, because it is infinite. It appears to us in two forms: (1) Force, which is an attribute of the conscious principle in the universe, whatever that is; and (2) *vis viva*, or mv^2, which is a property of moving matter. No additions or substractions caused by a transfer from one to the other can make any difference to either, because both are infinite. We all have constant evidence every day of the transformation of energy from form (1) to form (2); and for aught we know to the contrary there may be somewhere in some utterly unknown departments of the universe transformations from form (2) to form (1). But be that as it may; there is no escape from the conclusion that conscious beings are able to initiate motion. From that it follows that consciousness and motion are, in essence, indissolubly connected. And that is the proof that the God of the universe is more than Law. He is also Brahma—the Great Spirit—the World Soul. And, if by person we mean a being with definite feeling and knowledge and with will, then we have proved the personality of God.

And *is* the existence of Brahma a matter of no concern? I think I am willing to admit just about everything that you assert about God in your article on the Superpersonal God in *The Open Court* for February, 1897. It is in what you deny about him that I cannot agree.

Man is the highest product of evolution; and he is so principally in virtue of his possessing the faculty of consciousness in a very highly developed state. If God is simply Law and not Brahma, he is in that respect something inferior to ourselves. Being the highest types of conscious beings we want something higher still to look up to. Brahma is the ideal prototype of all conscious beings. What are we without him? The children of things inferior to ourselves—the lineal descendants of monkeys, frogs, plants, and rocks. Besides the loneliness of such a situation is there not a ring of something unphilosophical about it? How can there be a progressive evolution towards a high type unless there has been some previous involution from the high type? Can we conceive that conscious organisms could have reached the height of man by evolution unless a real actual perfect type had been in existence from everlasting? Consciousness and law are both attributes of man. He acts by consciousness, and his actions are governed by law. But are the laws of his being the only divine attribute that he has? Is not his consciousness also a spark from the divine? Does not the universal Law from which we derive the laws of our lives also govern a universal consciousness from which our consciousness is derived? Why divorce activity from consciousness in the macrocosm when in the microcosm they are indissolubly united.

I do not see that any of the attributes you ascribe to the superpersonal God are sufficient reason for withholding from him the term personal. I look at it this way. Superpersonal means more than personal,—i. e., personal, only more so. God cannot be more than personal without being personal. I think you almost, if not quite, assent to this yourself, for you say that the superpersonal God is not de-

prived of personality, but embodies all the conditions of personality. In fact if you hold to that statement I think you must give in to me about the consciousness of God; for I maintain that consciousness is one of the conditions of personality—in fact the chief condition.

I agree that God is not *a* God; he is God. But when I say that he is personal I do not mean that he is *a* God. Personal does not mean finite, present in one place at one time, transient. Nor does it mean merely definite in character. Rocks and stones are definite in character. The meaning of the word person is to me a being of a definite æsthetic character—a being possessed of definite feeling—definite mind. Such is God. And such, to a less degree is man. We are imperfect persons. Our characters are not so very definite, not crystallised, not solidified. We are changeable. A person of what is called strong personality is less changeable. But God is the perfect person.

And not only do you allow us no real existent Brahma to look up to, but nothing lasting to look forward to—nothing but final absorption into the lower state whence we came. *God* is immortal—the universe is immortal—of course it is; we all know that. But *we* are all to die. We stand on the summit of evolution with the certain knowledge that in the progress (?) of years every one of our kind on this planet will be as if they never had been. It is sound enough morality, as far as it goes, to say we should all live for each other. But it is the hollowest, shallowest, and most utterly illogical philosophy to seek in that idea an explanation of the problem of life. Why have we been evolved as individuals, why all the pain, what is attained—if we are all to be at last wiped out? I live for you, and you for me; but the problem of life is still unsolved. You are preaching a bankrupt philosophy—a philosophy with the bottom knocked out of it. How much longer are you going on imagining that you find satisfaction in it?

And what about our aspirations for a wider life outside this little globe in space? There is life like ours in other planets. But that is not much satisfaction to us if we are never to have any direct connexion with it. And the same is true of every inhabitant of every lonely planet. Are none of us ever to know our neighbors. You have no big plan of the universe to offer us, in which each planet fulfils its necessary part and has its own especial *raison d'être*. What are they for, these planets? There are those of us who seem to have learnt the lessons of the life here on this planet. We can take a broad survey of the whole of it, what it is and what it would seem to lead to. We have gone through the school and reached the highest form. Is there no outer wider life into which we can pass? Nothing but the certain knowledge of that final death which is—somewhen—to overwhelm our little planet and all in it?

W. E. Ayton. Wilkinson.

EDITORIAL REMARKS ON MR. WILKINSON'S ARTICLE.

There are a great number of people who are bound to have a God that is like themselves, an individual being possessed of an ego consciousness, with sentiments

like ours and pursuing plans of his own, which would render his nature a case of exact analogy to our own mental make-up. Mr. Wilkinson is one of them, and his plea for God as possessed of an ego consciousness with an individual organisation is very forcible and impressive. But after all, his theory proves untenable and will only reveal the weak points of anthropotheism, i. e., of that view of God which looks upon God as an ego consciousness, having definite feelings, endowed with knowledge, thinking successive thoughts as we do, and finally arriving at a decision to be carried into effect.

Mr. Wilkinson rightly combats the psychology of the late Professor Huxley who held that consciousness, being a mere spectator, is of no consequence; but he is mistaken when he thinks that consciousness can be regarded as a force, as a cause of motion. The tangled skein of errors can be unravelled by pointing out the truth from which his thoughts start and by searching for the fallacy on which they switch off into the assumption of a metaphysical *primum movens*.

We perfectly agree with Mr. Wilkinson that:

"All motion is either directly or indirectly associated with consciousness."

His arguments, however, become unclear when he speaks of force. He says:

"The idea of force as a connecting link between the two ideas of consciousness and motion somewhat assists us in imagining the association of the two."

Force is defined as "something that could cause motion," and then "consciousness is defined as a force." Mr. Wilkinson says:

"A conscious being or soul exerts will-force and thereby causes matter to move."

We would represent the facts as follows: Consciousness is a term denoting the awareness of certain states of our own existence, and motion means a change of place. Force is measured in terms of motion and mass, being conceived as the state of strain or stress that does or can induce motion. The "force" of a body in motion, as the term is popularly used, is called kinetic energy, the "force" of a body at rest and under a stress is called potential energy. Consciousness, being a state of awareness, is neither potential nor kinetic energy, it is no force at all, but it is simple awareness, a phenomenon of quite a different order. It is no mechanical phenomenon but a psychical condition which is commonly called feeling.

Mr. Wilkinson's mistake consists in confusing two abstractions of a different order. Consciousness is a phenomenon belonging to the subjective phases of our experience, while motion is an objective phenomenon. Feelings can be felt only by the feeling of feelings; and this feeling of feelings is the condition of our self-awareness. Feelings find expression in motions, and these motions can be watched, but the feelings themselves, feelings as feelings, are purely subjective; they cannot be seen, or observed by others. We have good reasons to believe that every feeling is the psychical accompaniment of a definite kind of a brain-motion, and we might, at least in theory, be able to know which brain-motion represents pain, which joy, which calm thoughts, and which any other kind of sentiment. But even then if we

inspected the machinery of the brain, it would be impossible to see feelings; we should see motions only, we should be confronted solely with objective phenomena; we should see no feelings, no sentiments, no joys, no pains, for they are purely subjective. Now we assume, according to the monistic doctrine which is commonly accepted by scientists, that matter, motion, consciousness are abstractions from reality, and not things in themselves, that things possess many qualities, they are material, they are active, i. e., they exhibit mechanical phenomena, and sometimes they are sentient, and the subjective side of sentiency is an exact counterpart of the observable objective phenomena.

Two mistakes have been made by philosophers, they have treated abstract notions as separate beings and believe that there are feelings which exist in ghostlike independence, or they identify the various abstractions where they are found in connexion, and call thoughts brain-motions, imagining that thoughts consist either of matter or are purely mechanical phenomena. The actual state of things is this: While an idea is being thought, the brain is in a state of activity. The idea consists in the significance of a sentiment. The sentiment is the subjective aspect of that which objectively considered is a cerebral motion.

The motion of the brain indicates that a commotion of the soul takes place, the significance of which exactly tallies with the form of the nervous excitement.

After these explanations it is apparent that the mechanical order of things remains continuous and is not interrupted by consciousness as a cause of motion; and yet consciousness is not, for that reason, an irrelevant factor in the world.

We must bear in mind that causation (least of all mental) does not depend upon the amount of mechanical motion but upon its form. A lock is opened not by force but by the right key which fits to the keyhole and lifts the lever. In a similar way, ideas find response in the minds of the people addressed. They are communicated by very simple mechanical means, viz., by air-sounds, called words, the significance of which is the same to all who know the language. Let us illustrate this in the instance pictured in a poetic *genre* picture of Lenau, who portrays the carousal of banditti in an inn of the Hungarian Pusta. Gypsies play the fiddle, some bandits dance, others drink, and the captain watches. But now his ear perceives the trot of distant horses, indicating the approach of soldiers. He gives the signal of alarm, and the noise of the revelling banditti is hushed. They take to their horses and disappear in the darkness of the Pusta. The concatenation of cause and effect is throughout as mechanical as are the motions of a machine, but the efficiency of the signal depends upon its significance which is constituted by all the recollections connected with the word. The mental element, i. e., the significance of words, is not a force that creates energy but is the meaning of the air-sounds, and this meaning wherever understood consists in a state of mind which imparts direction to the energy stored up in brain and muscle. It is not a motion or cause of motion, but corresponds to the form of the key and the lock. The speaking of a word and the listening to it takes a very small amount of energy, but

the significance of the words which is the reason why the words find response depends upon a definite form and is not a force, yet it may be accessory in stirring the energy of a whole nation and all its various dynamic resources of steam-engines and the gun powder of its artillery. Thus the mechanical energy of a spark is insignificant, while the explosion of a powder magazine is exorbitant, yet as the spark does not produce the mechanical energy which it sets free, so an idea does not create the energy to which it gives a new direction.

Ideas which loom up in the consciousness of men are not forces, and consciousness is the subjective aspect of a brain commotion, but for that reason ideas, far from being irrelevant, are the most important realities of life, and consciousness is the reflector in which they are actualised

So much to correct Mr. Wilkinson's view as to the shortcomings of the scientific conception of consciousness and his own theory which assumes that consciousness is capable of originating motion. I might proceed further and show how an idea depends on the form of a sensation or sentiment and not on the atoms in which it is thought; that the continuity of man's personality results from a preservation of form and not from an identity of any substance, and finally, that a reproduction of form means a rebirth of soul, for form is not a nonentity but the all-important factor of the world. Form in itself is the essential condition of things spiritual, and that continuity of form is a reality even in the flux of matter is proved by the continuity of consciousness which is preserved in spite of the constant metabolism of the body. Memory is a preservation of form, and we know onrselves to remain the same although all material particles of our body have changed, and we are obliged to renew constantly the supply of the sources of our energy needed for the sustenance of life. But we cannot discuss these subjects without writing a long essay on psychology. The main question at present is whether or not God is an individual being, a concrete ego-soul of the world, an *anima mundi*, thinking successive thoughts as we do and arriving at decisions like ours in every respect, except that he is greater, wiser, and infinitely more powerful than a man.

The existence of such a world-soul is not very probable, although I am not prepared to say that it is impossible, but granted that it existed, I should not confer on it the name God. The mere thought of it is sufficient for refutation. This world-soul would be an individual creature subject to evolution, conditioned by the eternal laws of existence and bound to respect the unalterable principles of right and wrong. This world-soul, taking now for argument's sake its existence for granted, has apparently enough to do in keeping the whole body of the universe in a state of health and cannot trouble itself about the personal welfare of the innumerable smaller beings that people the various limbs of his organism as bacilli inhabit a human being. The best argument that speaks in favor of this conception of an individual world-soul-god is the discovery of organisms smaller than we ourselves in our own system:

"For little fleas have lesser fleas
Upon their back to bite 'em,
And lesser fleas still lesser fleas
And so *ad infinitum*."

But what comfort can the flea derive from the idea that the world which he inhabits is as much an organism as he himself? Both, after all, are creatures, and neither is a God. An All-being would be an enormously big creature, still it would be a creature subject to error, failure, disappointment, sin, and suffering as much as any minor creature that lives in its bowels.

I do not wish to repeat myself in this reply to Mr. Wilkinson's criticism, especially as the last number of *The Monist* contains an article of mine on the same subject. I would only request the reader to bear in mind, first, that law is a convenient but in certain respects a misleading term, for those eternal uniformities which constitute the cosmic order; secondly, that these uniformities appear in their scientific formulation very dry and abstract, but in reality they are effective realities whose life is not like that of organisms subject to origin and decay, but everlasting and immutable. If they are said to be omnipresent, it means that they are here and everywhere, omnipresence does not mean that they are nowhere. Thirdly, we should mind that those eternal norms of right, of truthfulness, of purity of heart, are not less real than are the laws of gravitation. Fourthly, this omnipresence of God should not be interpreted in the sense of the old-fashioned pantheism which identifies God and the world. Although God and the world are separate, they are not one and the same thing; they are different. The Allhood of existence, its omnipresent formative feature is not tantamount with an All-being, i. e., the sum total of all things. Fifthly, God is not a vague generality but is possessed of a definite and well determined character. He exhibits a clearly pronounced suchness which is the ultimate standard of morality, of goodness, of right. In this sense we see a justification of the traditional dogma of the personality of God. God consists of all those features which constitute the personality of man, endowing him with rationality and moral ideals. But while we may speak of the system of divine eternalities as a person, we must insist that the personality of God does not mean individuality, for which reason we prefer to characterise God as superpersonal. His personality is of a higher kind than man's personality; it is an eternal and omnipresent personality, while man's personality is the personality of an individual being limited in time and space. Finally, consider that man is by dint of his reason a more or less perfect incarnation of the eternal in nature; he has originated in the image of God and is God as reflected in consciousness. Therefore while we may be the lineal descendants of monkeys, frogs, and amœbas, we are still the children of God. The eternal that permeates all transient phenomena has taken abode in man's soul; and this eternal which is in us constitutes our very soul. Our bodies have originated through the modification of the bodies of lower animals; but this modification has been effected through the omnipresent potencies of the eternal in

nature, of the creative and formative Deity, of the Logos that was in the Beginning.

Shall we, being more or less an incarnation of God and an actualisation of the eternal, be afraid of death? No, not when we have understood the full significance of this truth. Death dissolves our bodies; death terminates the activity of our earthly career; it does away with sufferings and all the tribulations of life. But the formal part of our being, the mould in which we have been cast, remains undestroyed.

Now, having stated my view of the situation and having pointed out some of the most flagrant mistakes of Mr. Wilkinson's conception of God, I cannot help adding a postscript in which I would urge Mr. Wilkinson to stick to his God conception so long as he is incapable of perceiving the deeper truth of a more philosophical interpretation of facts. The dogmas of religious tradition are not untrue, but expressed in parables. He who discards the parable as untrue is apt to think that it is meaningless. The babe that cannot as yet digest meat should not become dissatisfied with the milk, else it will starve. And, on the other hand, there is nothing wrong with the milk when the adult is advised to live on a more substantial diet.

P. C.

MR. LUTOSLAWSKI'S "PLATO."

Mr. Lutoslawski's reply raises a different issue from that which I intended to make in the review to which he objects. I am not concerned to deny Mr. Lutoslawski's cleverness, industry, and erudition, and I can cheerfully subscribe to many of the flattering things said by the critics whom he quotes. The true interpretation of the Platonic philosophy and the value of any given attempt at such an interpretation are perhaps matters of subjective opinion. The translation, fair paraphrase, or meaning of particular Platonic *loci* is or should be generally a matter of fact. The "fact," then, of which I spoke is that Mr. Lutoslawski positively misapprehends many Platonic passages and strains or perverts the fair meaning of very many more. In support of this contention I cited by chapter and verse a considerable number of passages. To meet my criticism Mr. Lutoslawski must show that these passages are correctly translated, or, if he prefers the expression, "interpreted" or "applied." But his answer refers to only one passage, Timaeus 28 A. He says that he did not intend for a translation the interpretation which he twice gives of this passage. I will not cavil on that point. The interpretation is wrong, and the passage does not tend to establish the thesis in support of which it is cited except on the wrong interpretation. Mr. Lutoslawski remembers his *Gorgias* too well to expect a Platonist to be overcome by a cloud of witnesses, especially if their testimony does not bear on the point in issue, which, I repeat, is the correctness of Mr. Lutoslawski's interpretations of specific passages. I positively affirm that his book contains many misstatements of fact and a large number of interpretations which are erroneous whether they be translations or not. I have cited several of them. It will be easy to cite more when these have been considered.

UNIVERSITY OF CHICAGO. PAUL SHOREY.

BOOK REVIEWS.

THE PLAY OF ANIMALS. By *Karl Groos*, Professor of Philosophy in the University of Basel. Translated with the Author's co-operation by Elizabeth L. Baldwin. With a Preface and an Appendix by J. Mark Baldwin, Professor in Princeton University. New York: D. Appleton and Company. Pages, xxvi+341.

The importance of play in relation to the development of the infant mind is so great, and yet so little has been written on the subject and presented in English dress, that this excellent translation of Professor Groos's work will be received with a hearty welcome by English and American psychologists. Devoted as it is almost entirely to the play of animals, the work might be thought to belong exclusively to the field of animal psychology, but now that the principles of evolution have come to be recognised as applicable to the development of the mental nature, as well as to that of the physical organism, the exclusive view must be regarded as erroneous. Plants, animals, and man form links in a continuous chain of being and therefore the nature of man cannot be understood without a study of the organic existences below him in the scale.

All but about 120 pages of Professor Groos's work is devoted to a descriptive account of animal play and the details he gives furnish ample material for the deduction of the principles which govern it, although they do not admit of criticism in an ordinary review. Nevertheless, it is interesting to take note of the great variety displayed in the amusements which animals indulge in, and their close resemblance to those of human childhood. First we have a group of phenomena to which the term experimentation is applied. This term is used to denote such movements of young animals as enable them first to win the mastery over their own organs and then over external objects. They include stretching and straining the limbs; tasting, seizing, and clawing; gnawing and scratching; exercising the voice; rending, pulling, tearing, tugging, kicking, lifting and dropping objects, etc., all of which are practised by the human infant no less than by the young animal. On such movements depend, says the author, the proper control of the body, muscular co-ordination, etc., while psychically they promote the development of the perceptive faculties, such as space-perception, attention, will-power, memory, etc. They

thus form the common foundation on which the specialised plays are built up Then comes a series of plays, designated movement plays, which involve change of place for its own sake, such as practice in locomotion, walking, running, leaping, climbing, flying, swimming. Hunting and fighting differ from these movements in having a specific aim. The latter includes teasing, in which many animals are great adepts, tussling among young animals and playful struggles among grown animals. A series of curious plays are those connected with the constructive arts, including the methods of building ornamentation employed by some animals, chiefly birds. The author traces these to a sensuous delight in what is bright and gay, which is an important antecedent to æsthetic pleasure, "because it assures a lively perception of the object," but not to be mistaken for æsthetic pleasure itself. In relation to nursing plays, most of the animals concerned in which had lost their own young and were trying to find an outlet for the fostering instincts, Professor Groos remarks that when half-grown birds assist in caring for the younger ones," we have the veritable play of young creatures, in which, however, imitation is perhaps as much involved as the nurturing instinct."

We are here introduced to a very important series of animal actions, those which exhibit the influence of the imitative impulse. The author devotes a chapter to the consideration of the relation between play and instinct which contains a summary of the principles that give a psychology of play and from which the following quotation may be made, as well expressing in outline his special theory. After stating that the imitative impulse is an instinct directly useful in the serious work of life among most, if not among all, of the higher gregarious animals, and that all youthful play is founded on instinct, illustrations of which are to be found in the modes of play already referred to, he adds: "Besides these plays, which are "founded on strongly developed instincts, and can therefore be practised without a "model, there are many others worthy of consideration: those in which at least "two instincts are involved—one an impulse only rudimentarily present, though "easily aroused, and the other the accompanying imitative instinct. To this class "belong the instances . . . of young birds learning to sing, probably, too, the "barking of puppies, and the imitative play of little girls whose motherly tending "of their dolls could hardly reach the perfection in which we see it without imita-"tion. . . . . Finally, it must be admitted that there are cases where the imitative "impulse exceeds the limits of instinct and apparently works alone, as when apes "imitate the actions of men, where parrots learn to speak intelligently, and when "children play horse cars, railroad, hunter, teacher, and the like. But even here "a latent desire to experiment contributes, and it is evident how necessary such "play is to the development of mind and body."

In dealing with imitative play, Professor Groos considers the theory, propounded by James Mill in his *Analysis of the Phenomena of the Human Mind*, according to which imitation is of individual (not hereditary) origin, concluding that "the exercise of imitative impulse does not use tracts learned by association,

but rather inborn ones; in other words, that it is not acquired but inherited; it is an instinct." In this view he agrees with Herbert Spencer, but demurs to his assumption of the inheritance of acquired characters, preferring the principle of survival of the fittest, or selection, as the proper basis for a definition. To prove that imitation is useful, he takes the ground that it is an instinct "which works directly toward development of intelligence, since its tendency is to render many other instincts to a certain degree superfluous, and so encourage independence in the individual." The fact that imitation is strongest in the more intelligent animals supports that view, man himself being the imitative animal *par excellence*. The question arises, however, as to when imitation is in earnest and when merely playful, but the discrimination is easy to make by reference to the definition of play as "instinctive activity exerted for purposes of practice or exercise, and without serious intent." The author gives many interesting instances of imitative play, which is the most striking among birds that have acquired the art of speaking, but is to be seen also in the vocal practice of all animals when carried on in concert. He is of opinion that courtship is the unconscious basis of such sounds and of the curious movements which often accompany them, stating that "when the contagious influence of imitation becomes a factor in mass games, they are easily converted into veritable orgies." Here Professor Groos sees the operation of the principles that govern ethnology and the history of human civilisation. The plays of birds correspond with our general dance that is so closely connected with sexual excitement, the principal difference being that "the notions of the human dancer less clearly betray the courting instinct." It is there, nevertheless, and thus "we may learn much from the courtship of birds that is applicable to man as well."

In *curiosity* Professor Groos finds the only purely intellectual form of playfulness he has met with in the animal world. Curiosity is called "sportive apperception," and the primary reason for it is said to be the necessity for mental exercise added to the increase of knowledge. With it is often associated the æsthetic perception manifested in the absorbed attention with which some of the higher animals observe the movements of others, even of human beings. The attention is not conscious, however, in the ordinary sense, and hence the examples recorded of it are only elementary expressions of æsthetic pleasure, but they "serve to show that the sphere of æsthetics is infinitively wider than that of the beautiful."

The space at our command will allow of a merely cursory glance at the love plays which, owing to their being expressions of the sexual instinct, are among the most important phenomena of animal life, and to which the author devotes a special chapter. He first considers the objections made by Wallace and others to Darwin's theory of sexual selection, and concludes that as "the excited condition necessary for pairing and also a certain difficulty in its execution, are both useful for the preservation of the species," sexual selection is only a special case of natural selection. He divides love plays into five separate classes, those among young animals occupying the earliest place and coquetry in the female the latest, the in-

termediate classes consisting of different forms of courtship. Professor Groos concludes his highly instructive work with a chapter on the psychological aspects of play, the principal content of which is the investigation of "make-believe" or "conscious self-illusion." He shows, moreover, that the psychic accompaniment of experimentation, the most elementary of all plays—the "joy in being a cause"—is the central idea of the whole conception of play. It permeates every kind of play, and has a significance not sufficiently appreciated even in artistic production and æsthetic enjoyment. C. S. WAKE.

THE PREPARATION FOR CHRISTIANITY IN THE ANCIENT WORLD. A Study in the History of Moral Development. By *R. M. Wenley*, Professor of Philosophy in the University of Michigan. New York, Chicago, Toronto. Fleming H. Revell Company. Publishers of Evangelical Literature. 1898. Pages, 194. Price, 75 cents.

It appears from the Preface to this little book that it was prepared for the Church of Scotland "Guild Series," the design of which is "to deepen the intelligent interest of the laity in all questions connected with the origin, nature, history, and extension of the Christian religion." This the present volume cannot fail to do, as it is an able presentation of a difficult and important subject, by a writer who is well qualified to deal with it. Professor Wenley's earlier studies are well known and in his *Socrates and Christ* he has already gone over a portion of the ground covered by this work, the key to the argument of which is to be found in the introductory statement that Christianity "was born into a universal empire, the state of which at the moment is matter of history; all the circumstances of the time imperatively demanded the new revelation, and conspired to the successful propagation of the 'good news'." A preparation had been going on for a considerable period the commencement of which the author places in the Periclean age of Greece. It was then man first acquired some consciousness of his own worth, before which the questions that necessitated the Christian revelation were practically non-existent. For two centuries prior to Socrates the Greek mind regarded itself as one with nature. Hence, says Professor Wenley, religion was based on personification, and gradually came to be associated more and more with human qualities, the Hellenic gods assuming "clearly marked individual characteristics." During the same period, Greek thinkers exhibited a similar sense of unity with the outer world, combined with unconsciousness in regard to ethical questions. The so-called problem of substance engaged the attention of philosophers, giving rise to the formation of two opposite schools who agreed only in the doctrine of deception by the senses. This doctrine was adopted by the Sophists, who declared that as the senses do deceive, one man's opinion is quite as good as that of another. At this point Socrates appeared, and he is rightly termed by the author a missionary, for he had a gospel, the preaching of which led him to a martyr's death. The life work of Socrates, says Professor Wenley, was "to turn investigation from matter

to man, to deflect interest from the foreign order of outer things to the inner realm of regnant personality"—to teach its own infinite value to the human soul. The gospel of Socrates was incomplete, as it was limited to the Greek citizen whose duty it declared to be to do his best for the interests of his community.

That which was begun by Socrates was continued by Plato and Aristotle, in whom the Hellenic spirit "gathers itself together, so to speak, and applies its assembled resources to the fundamental problems of the nature of the universe and of man's being." Their conception of the moral life was perfect, as it required the life of morality for the sake of morality, but their notion of the good man was not as he was essentially Greek whose duty was restricted to the State. Professor Wenley, after treating of this "Greek self-criticism," devotes a chapter to the consideration of the philosophic ideas of Epicurus and of the Stoics, under the title of "Salvation by Wisdom." This he declares to be a failure because it rendered humanity, "miserable enough already, too poverty stricken." As the mission of Socrates was to reveal man to himself, so that of the Jews was to reveal God to man. In religion, says Professor Wenley, at least four life-streams commingled. "From Greece it largely derives the conception of God's manifestation in the universe; from Rome, the idea of God's identical relation to all men everywhere; from Teutonic character, the importance of God's connexion with every man apart; from the Jews, God himself." Not only was the mission of the Jew religious, but so also was their genius, and to their conception of God was added a vivid perception of the conditions essential to pure religion. To be perfectly righteous as God was to them man's chief end. The religious enthusiasm they exhibited is ascribed by the author to the influence of the Law which had been elaborated during the four centuries and a half that elapsed between the last of the prophets and the advent of the Saviour, which occurred at a time of general unrest and of expectation of a deliverer from Roman domination. In the next two chapters Professor Wenley treats of the Preparation of the World and The Preparation of the Spirit for the Appearance of the Saviour, as exhibited by the external unity and the moral anarchy which marked the epoch. This was gradually removed, however, by "the accomplishment in Christ of everything that a man ought to become in order to attain the dignity of true manhood," a statement which well sums up the author's philosophy. C. S. W.

DIE PHILOSOPHIE DER GESCHICHTE ALS SOCIOLOGIE. Von *Dr. Paul Barth*, Privatdocenten an der Universität zu Leipzig. Erster Teil: Einleitung und kritische Uebersicht. Leipsic: O. R. Reisland. 1897. Pages, 396.

The author of this book, a private docent in the University at Leipsic, has not yet been prominently before the public, but he exhibits a fair acquaintance with the domain of economics and its history and (leaving aside some obvious misconceptions) sometimes shows very good judgment in practical questions.

Barth claims that the object of history is neither the individual, nor mankind

as a type, but society; and thus a philosophy of history will naturally become sociology. He passes in review the various sociological theories, beginning (after a brief mention of Plato, Aristotle, and Montesquieu) with St. Simon and his followers. He enters deeply into an analysis of Comte, adding thereto Littré, De Roberty, De Greef, Lacombe, and Wagner, all of whom are decidedly influenced by Comte's philosophy, and therefore Barth comprises them under the heading of "Classifying Sociologists," for, says our author, "classification receives here a higher importance than it usually retains in other sciences" (p. 59). "They have throughout proved failures and their results are unsatisfactory" (pp. 88–89).

Another class of sociologists are those who are dominated by a consideration of biological growth. They are Spencer, Lilienfeld, Schäffle, Fouillée, and Worms. Barth criticises them for incoherence, for a neglect of important analogies, for the tacit assumption that the elements of society have remained the same and especially for a lack of clearness as to the origin and course of development of the so-called higher features of society.

This lack of clearness leads to a dualistic construction of the social problem which is attempted by L. F. Ward,[1] J. S. Mackenzie, M. Hauriou, F. H. Giddings, and B. Kidd. Their views are summarily condemned as unhistorical.

Among the one-sided theories which form the next class of sociologists, Barth treats the individualistic, the anthropogeographical, the ethnological conceptions, then the views based upon the history of civilisation, of politics, of ideology (i. e., a consideration of leading ideas), of economics, of production (Marx), of the struggle of the classes (Loria).

Barth's criticism of the one-sided sociologists is more thorough than that of the classifying biological and dualistic systems, and he devotes several pages to a refutation of Marxism whose notions of social relations, of adaptation, of production, of consumption, of social justice, of egotism, as a cause of the present conditions are enumerated as faulty.

Having proved the insufficiency of all social theories it only remains to be shown that on that account sociology as a philosophy of history is not impossible. This is done by a refutation of Schopenhauer and Dilthey. And now we stand on the ruins of all previous systems of sociology, and a feeling of sadness overcomes the reader that all efforts have thus far proved in vain. But we are not yet through. Dr. Barth still lives, and he employs the last sixteen pages to comfort us with a new sociology that is left unharmed. It is a sketch of his own views which shows how the horde was the nucleus of human society from the formation of which we must start. The horde changes at the period of animism into a tribe; the tribe is organised into gentes with a polytheistic religion. Then law originates and the gentes change into estates. Nature worship is transformed into a religion of law. Education is introduced. After the breakdown of the Greek and Roman civilisation of

[1] Mr. L. F. Ward would, of course, strongly object to being classed among dualists.

estates we have the estates of the Middle Ages which are followed by the régime of absolutism, and in later days by liberalism. An outlook upon the present conditions ends in a complaint of the symptoms of decadence and a lack of idealism among the laboring classes. The author expresses the need of a new birth in which mankind will reconsider moral values and bring forth a new social order and a new art. P. C.

IMMANUEL KANT. SEIN LEBEN UND SEINE LEHRE. Von *Friedrich Paulsen.* Mit Bildnis und einem Briefe Kants aus dem Jahre 1792. Stuttgart: Fr. Frommann. 1898. Pages, xii, 396. Price, 4.75 Mk.

Kant's philosophy has rather grown than decreased in importance, both in the fatherland and abroad. It is one of those philosophies of the past which is still living, and Friedrich Paulsen's work on Immanuel Kant, his life and doctrine, will be the more welcome as he is the man to cope with the many difficulties that surround this great task. He is not exactly a disciple and follower of the great Königsberger, yet he remains conscious of the gigantic power of the grand old man. Paulsen is critical, and would recommend neither Kant's schematicism nor the doctrinary style of his apriorism,[1] but is in sympathy with his ethico-metaphysical Idealism, i. e., with the view Kant takes of the relation of the cognising mind to reality, and the determination of the significance of knowledge, as well as volition in practical life. These latter things are after all of paramount importance, and they have become a lasting ingredient of German philosophy.

Having defined Kant's significance both in the history of the world and in his own age, Paulsen sketches his life and character as a man and a thinker (pp. 21–104), and then devotes the main part of his book to an appreciation of his theoretical (pp. 105–289) and practical philosophy (pp. 290–374). A brief conclusion surveys the influence of Kantian philosophy and its relation to the present. An index is missing according to a well established German custom, but this in the present case is quite excusable, as a student of Kant who is familiar with Kant's works will easily find passages he may be in search of with the help of the table of contents. The facsimile of a letter written by Kant to his brother, and a photographic reproduction of the group Kant and Lessing on the pedestal of Rauch's famous monument of Frederick the Great in Berlin are adornments which will be of good service to the reader interested in Kant and his philosophy.

Paulsen's treatment of Kant's philosophy is concise and clear,—at least for German students, and deserves a place in every philosophical library of the world. It will be a great help to English and American philosophers who are beset by the misrepresentations which Kant's system has experienced at the hands of both his friends and enemies, foremost among the former, Hamilton, among the latter, Her-

[1] Paulsen loosely calls it *aprioristisch-dogmatische Denkweise*, an expression which can easily be misunderstood, since "dogmatism" is a term in Kant's philosophy which would not apply here.

bert Spencer. Should any one undertake an English translation of Paulsen's book, we would suggest that he correct in a translator's preface the most flagrant misconceptions of Kantism that are rampant in English-speaking countries. P. C.

LEHRBUCH DER PHYSIOLOGISCHEN UND PATHOLOGISCHEN CHEMIE. In neunundzwanzig Vorlesungen für Aerzte und Studirende. Von *G. von Bunge*, Professor in Basel. Vierte vermehrte und verbesserte Auflage. Leipsic: F. C. W. Vogel. 1898. Pages, 510. Price, 12 M.

The fourth edition of Bunge's *Lehrbuch* shows the position of its author unaltered, or rather re-enforced. It contains all the various lectures on vitalism; the cycle of the elements; the preservation of energy; man's food, especially protein, starch, carbonates, fats, and phosphates; stimulants (alcohol, coffee, tea, etc.); sputum and pepsin; the intestinal secretions and the gall; blood; lymph; carbonic acid and the gases of the blood in the various modes of respiration including the gases of the intestines; uric acid; the secretions of the liver; the sources of muscular energy; diabetes mellitus; the nature of fever. There have been added four new subjects, all of them of great importance, viz.: (1) the milk and the nutrition of the baby; (2) the spleen; (3) the rôle that iron plays in the economy of the body; and (4) the function of those glands which possess no vent for their discharge —the suprarenal capsule, the scutiform gland, and the hypophysis cerebri.

Bunge is one of the leading authorities in his line of research, which is physiological and pathological chemistry, and his investigations as well as the lucid way in which he presents the results of his labors are truly classical; but he has provoked the opposition of his colleagues by his determined adhesion to the theory of vitalism and his repudiation of mechanicalism, i. e., a philosophy which would attempt to explain vitality and the phenomena of organised life by the laws of mechanics. Bunge insists on the fact that organised life cannot be regarded as a domain of physics or chemistry, but is something quite different, and that therefore we are entitled to contrast vitality with the lower forms of natural forces. The present edition contains a brief reply to Bunge's critics, among whom Émile du Bois-Reymond is perhaps the most prominent scientist. Bunge says:

"All criticisms which R. Heidenhain, E. du Bois-Reymond, Max Verworn, "A. Mosso and others have directed against my position, can be summed up in the "sentence that constitutes the basis of my argument from which I proceed. It is "this: 'Any one who expects to discover with the same senses in animate nature "something different from what he discovers in inanimate nature is guilty of a lack "of discretion (*Gedankenlosigkeit*).' But my critics have not even touched the "salient point of the problem—the impossibility of a mechanical explanation of "psychical qualities; these qualities are the immediate object of experience, they "are the most real of all reality.

"Any one who takes offence at the word vitalism is at liberty to replace it by "other terms—idealism, scepticism, empiricism; but that would alter little in my

"exposition. I have only shown that the metaphysical speculations and dogmas of "the mechanistic philosophy are definitely refuted by empirical psychology and "the most immediate observation and experience.

"The hypotheses upon which the mechanistic explanation of nature is based, "viz., the atomistic theory, the theory of undulation, the mechanistic theory of "heat, etc., are metaphysical speculations which attempt to comprehend the na- "ture of things as they are, not as they appear; and these hypotheses were gained "by transferring some notions based upon introspection into the realm of the ex- "ternal world—viz., the notions space, time, quantity, number, energy. To trans- "fer more notions from the inner life to the outer has not proved recommendable. "Certain philosophers have ventured to do so, but the physicist resigns himself to "measure the quantities of objects without forming an opinion of their qualities. "But now the mechanistic philosophers turn backwards and transfer *vice versa* "the notions projected into the outside world into the inner state of the phenomena "of life and trust that they explain with these few, poor, unmeaning notions the "entire fulness and the whole wealth of the inner world.

"There is no reason to believe that the world of our inner senses, the life of "the soul, should be limited to sundry divisions of the cerebrum. Only ask your- "self the question, Whence does the life of the soul come? The answer is, It is "inherited through one simple cell. Through a continued division of this simple "cell, all other cells, all the tissues, and among others the nervous tissues, the "brain, the cerebrum, of our body originate. And should not what is ontogenet- "ically true, hold good also phylogenetically? If we descend in the series of ani- "mal life down to the unicellular beings, where does soul-life cease? Does it dis- "continue with the disappearance of the brain or where we can no longer trace a "distinctly differentiated nervous system? There is nothing to prove such an as- "sumption. Should we not think that perhaps every cell and every atom is an "ensouled being; and that all life is soul-life?"

There is much in Professor Bunge's position that deserves a careful consideration; he is right when he claims that the psychical phenomena cannot be explained by physical or mechanical laws; and the simple reason is that the laws of motion can explain motions only and not phenomena that are not motions. Bunge raises a problem of importance and suggests its solution, but fails to work it out with precision and accuracy. He declares that "the physicist resigns himself to measure the quantities of objects without forming an opinion of their qualities." This is not true. The investigation of qualities does not lie outside the domain of natural science, and we can easily explain qualitative differences by a difference of form.[1]

We conclude our review with the remark that Bunge takes quite an exceptional position on the liquor question. Although a German Swiss, he is an outspoken enemy of alcoholic drinks in any form, and advocates the use of coffee and tea in

[1] For further comments on Bunge's position we refer the reader to Carus's *Fundamental Problems*, pp. 180–183.

their place. He claims that alcohol never acts as a stimulant, saying: "Ueberhaupt hat der Alkohol nur lähmende Eigenschaften." We need not repeat the arguments which he offers against even a temperate use of alcoholic drinks, for they are the same that are found in the usual temperance literature. The reviewer was quite impressed to find so good an authority as Professor Bunge among the teetotalers, and being a moderate drinker himself, felt much inclined to become an absolute abstainer, when he was saved by the statistics of Goethe's indulgence in hock and claret, the quantities of which are appalling and would be sufficient to fill a well-sized bathing tank. It is a pity that, having lost the paper in which the item was mentioned, we cannot give the exact figures; but consider that Goethe drank wine daily with his meals, and on festive occasions, in the lodge or at other social gatherings, he frequently drank a whole bottle, or even more, and yet none of the evil results fell upon him. Neither his stomach nor his kidneys nor his brain were noticeably deranged. He lived to a good old age, continuing his habit of drinking wine to the very end of his life, and wrote in his seventieth year the second part of *Faust*, a work which few people who train themselves in abstinence from alcoholic drinks could improve upon.

The pernicious effect of all kinds of liquors of which Professor Bunge speaks may be true enough of immoderate drinkers, but not generally, while on the other hand tea and coffee are probably not quite so harmless as he represents them. The very quality for which advocates of temperance recommend them, renders their poison insidious. Too much wine intoxicates, and there is a limit to indulgence in it, but too much coffee renders one sleepless and brings on a number of neurotic diseases the worst of which are quite as bad as delirium tremens.

We have no intention of discussing the problem of prohibition, and must therefore stop, but while we recommend Professor Bunge to our prohibition friends as one of their mightiest allies, we wish to say that the weakness of his *raisonnement* on alcohol does not detract from the general excellence of his work, which is full of valuable information and should be translated into English by a competent pen.

P. C.

SYSTEM DER WERTTHEORIE. I. Band. Allgemeine Werttheorie, Psychologie des Begehrens. II. Band. Grundzüge einer Ethik. By *Dr. Christian von Ehrenfels*, Professor der Philosophie an der deutschen Universität in Prag. Leipzig: O. R. Reisland. 1898. Pp., 277+270.

UEBER DAS SOLLEN UND DAS GUTE. Eine begriffsanalytische Untersuchung. By *Fred Bon*. Leipsic: Wilhelm Engelmann. 1898. Pp., 188.

DER BEGRIFF DES ABSOLUT WERTVOLLEN ALS GRUNDBEGRIFF DER MORALPHILOSOPHIE. By *Dr. Felix Krueger*. Leipsic: B. G. Teubner. 1898. Pp., 93. Price, 2.80 Mk.

Valuation (or *Werthung*) is a term which was originally coined by economical writers and has of late come to play a prominent part in German ethics. There is

no modern treatise on morality in whose pages we should not find an exposition of the nature of "values" applied to moral sentiments and actions. Kant's formalism is commonly deemed antiquated, and the hedonistic ideal of utilitarianism has been introduced in Germany by the late Professor Gyzicki and the Danish ethicist Höffding. It was mainly Gyzicki who thought that morality had no sense, except we could measure the worth of actions in sentiments. Since then the idea of gauging ethics by some kind of value has remained in the foreground, and we meet now with serious attempts to define the meaning of valuation.

The first of the books under review undertakes to lay down the foundation of ethics in a system of valuation, defining worth in terms of desire. Ehrenfels says: "We do not desire things, because we recognise in them that mystical and intangible essence called worth (which is merely a metaphysical illusion), but we deem them valuable because we desire them" (pp. 3 and 52). This definition leads to a discussion of the relation between feeling and desire, both of which belong to one and the same class of fundamental phenomena, but we should learn that feeling depends upon desire, not *vice versa* (p. 10). In opposition to Kant, Ehrenfels teaches that reason can exercise only an indirect influence upon volition, and that any theory of the autonomous supremacy of reason is an unnatural idea (pp. 9–10). Any desire or volition is actualised only when the state of happiness that depends on it lies higher in the scale of feelings than that other state of happiness which would obtain if the act were not done (pp. 35–36). On the one hand, our author rejects the proposition that values are determined by egotistic desires alone; on the other hand, he declines to recognise the ideal of something that possesses absolute value as practical. Value, being a relation between subject and object, is necessarily relative, and the amount of a value is proportionate to the intensity of the desire as well as the difference between the two states of feeling in case the object be or be not attained (p. 65).

After a review of the import of valuation in the struggle for life and the evolution of types, and a psychological analysis of desire, Professor Ehrenfels lays in the second volume of his work the foundation of ethics as a psychology of moral valuation which must be regarded as a special branch of a theory of valuation in general. In this way he proposes to avoid, on the one hand, the antiquated doctrine of an absolute normative ethics; and on the other hand, a relativistic historical ethics. This second part contains an analysis of ethical valuations, a discussion of the ethical development, of moral maxims, custom, and justice, the individual ethics of conscience, etc., and in conclusion determines the nature of ethics as a theoretico practical discipline whose task in practical life will be to investigate all the regulative social desires, evaluate them with reference to the desirability of their aim, or, if necessary, to replace the antiquated aims by new and more adequate ones (258).

Fred Bon also treats the problem of ethical valuation (p. 166), and finds the difficulty in the haziness that surrounds the conception of the ought, which he treats in a triple gradation, asking first, "What shall I do?" Secondly (consider-

ing in general the aim or purpose of the ought), "What shall I do in order to attain this or that end?" And, thirdly, "What shall I do to be happy?" The third question reappears in the other formulation, "What shall I be?" The author does not intend in the present pamphlet to give an exposition of moral goodness, but only to prepare the field in a philosophical *Vorarbeit*, and thus to indicate the foundation for a scientific ethics.

While most of our modern ethicists would regard the idea of absolute value as something self-contradictory, Felix Krueger proposes to utilise this stone of offence rejected by the builders and to make it the head of the corner. His ethics is based upon the solution of the question, "What possesses for man an absolute value?" (P. 3). While he does not advocate a reckless return to Kant, he believes that we have not yet drawn to-day all the consequences of his ethical doctrine; he proposes to transcend Kant by understanding him. In contrast to the view that identifies value with desirability, Krueger discovers value only in the constancy of desirability. Valuable is not what I desire under given conditions, but that which also remains or must remain an object of volition. Krueger believes that the idea of valuation alone can overcome the ethical eudæmonism of our age (p. 45). He says that the main thing is to organise (i. e., join harmoniously) the possibly greatest variety of volitions through psychical functions (p. 66), and thus we reach "the ethical ideal" which consists in this, that "one shall develop as much as possible into an evaluating man—*ein werthender Mensch*." (P. 79.) P. C.

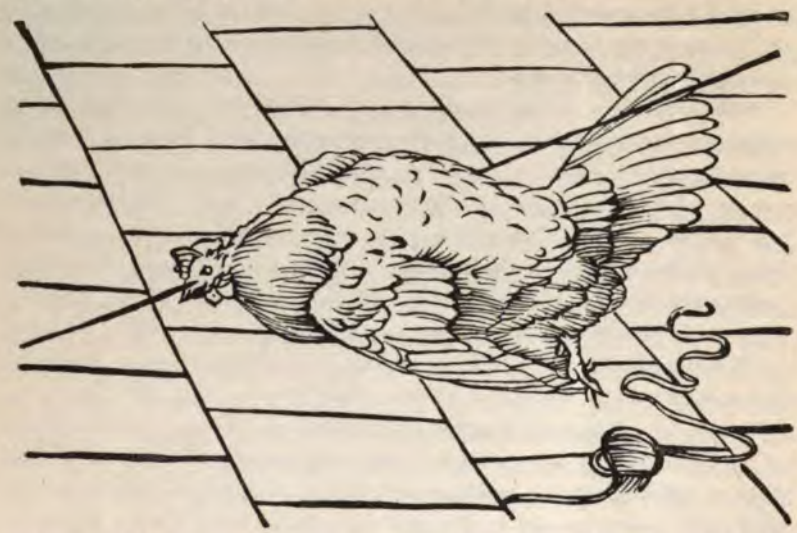
BEITRÄGE ZUR PHYSIOLOGIE DES CENTRALNERVENSYSTEMS. Von *Max Verworn*. Dr. med., a. o. Professor der Physiologie an der Universität Jena. Erster Theil. Die sogenannte Hypnose der Thiere. Mit 18 Abbildungen im Text. Jena: Verlag von Gustav Fischer. 1898. Price, 2.50 Mk.

Max Verworn possesses the ability of presenting a topic in an interesting way and the present pamphlet will be welcome to many who desire a popular explanation of the various symptoms of those phenomena which go by the name of animal hypnosis. The reader will be pleased to find a literal quotation of the famous passage[1] of Kirchner's *Experimentum Mirabile de Imaginatione Gallinæ*, together with the original woodcut of the hypnotised hen (See p. 318). That this famous Jesuit cannot lay any claim to the discovery of this trick has been proved by Preyer who called attention to a description of the same experiment which Schwenter[2] made ten years before the appearance of Kirchner's *Ars Magna*. The experiment was regarded as a phenomenon of magnetism and in modern days of hypnotism, and similar experiments have been made by Czermak and others with other animals. Verworn passes in review the experiments made on birds, mammals, reptiles, amphibia, and the crayfish. The results on fishes, as obtained by Danilewski,

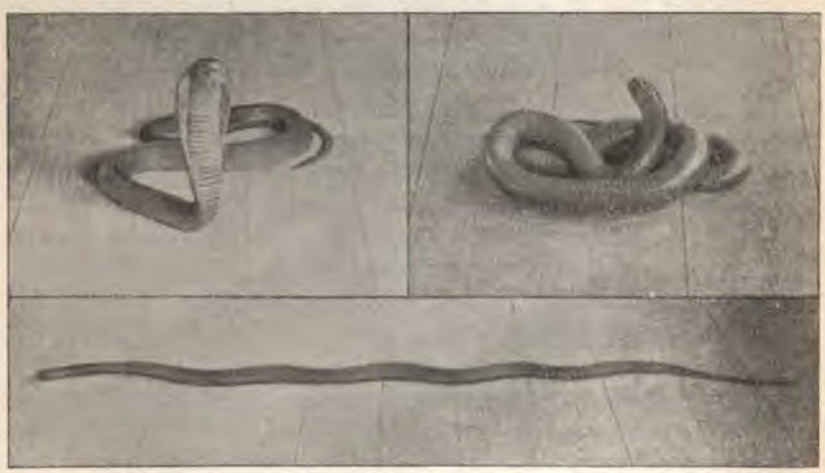
[1] Athanasius Kirchner, *Ars Magna Lucis et Umbræ*, Rome, 1646.

[2] Daniel Schwenter, *Deliciæ Physico-Mathematicæ oder mathematische und philosophische Erquickungsstunden*, etc. Nürnberg, 1636.

must be regarded as doubtful. Verworn himself made his own experiments mainly on guinea pigs, chickens, and frogs, and comes to the conclusion that the rigidity exhibits always that position which the animal tried to correct, and it is not due



to absence of strong motor impulses. There is no reason to seek for other causes of this abnormal condition than muscular fatigue (pp. 50 and 55), which result is corroborated by the fact that the experiments are successful also with hens



whose cerebrum has been carefully removed without injuring the cerebellum (p. 53). Verworn's theory is that the rigidity is produced—and the same would be true of the passive condition of the body in natural sleep—not directly through fatigue, i. e., not through the over-exertion of dissimilation in the tissues, but through a

more vigorous assimilation which by its peculiar activity produces the phenomenon of inhibition.

We may add that according to Verworn (and perhaps he is right) the rigidity of the Egyptian snake Naja Haje, which is produced by a slight pressure of the neck below the swelling of the head when in a striking attitude, is of a different character. The fact possesses a peculiar interest on account of the Biblical report of the tricks of Egyptian priests in which Moses is said to have surpassed them. Verworn says that in the hen, the frog, the guinea pig, etc., the cause of the rigidity is the exertion made for the sake of freeing themselves from the awkward position, but the Naja Haje becomes motionless through the pressure upon a definite (although not well circumscribed) region of the body (p. 41). He observed, however, that the snake when rendered motionless, merely resembles a stick; it is not stiff but flaccid and pliant. (See second cut.) P. C.

HANDBUCH DER MENSCHLICH-NATÜRLICHEN SITTENLEHRE FÜR ELTERN UND ERZIEHER. By *A. Döring*. Stuttgart: Fr. Frommanns Verlag. 1899. Pages, 415. Price, 5 M.

The German society for ethical culture proposed a prize competition for a satisfactory ethical text-book for parents and educators, but the prize was not awarded. Hence the author believes that the demand is not yet satisfied and offers his book as an attempt to compile the main results of morality on a scientific basis in a popular form. He claims that the ethical (*das Sittliche*) is something which does not change with the change of time but remains essentially the same. Its highest doctrine is never to harm a sentient being without necessity and without an imperative reason, but on the contrary to further as much as possible the welfare of every sentient being" (p. 33). The author's position is characterised by excluding God and man's own self from the domain of an ethical motivation; for although God is regarded in the Bible as a sentient being, we cannot according to a modern conception of the Deity believe that we can do him any harm. This, however, does not exclude the fact that those who believe in God can subjectively become guilty of immorality in their conduct toward him.

As to ourselves, Döring thinks we have no direct, but only indirect duties viz., in so far as our personality affects the destinies of other sentient beings. Upon this basis the author discusses the virtues: justice in its various relations, duty (*Berufstreue*), goodness (*Güte*) as shown in taking care of others (*Fürsorge*), and discretion (*Weisheit*). The sexual problem and temperance are treated under this last head. He then ventilates a number of ethical problems such as sympathy and love, adaptation to society, conscience, original sin, stirpiculture; a special part is devoted to the realisation of morality, and the book ends with the author's specialised advice as to the way children should be educated before they attain the maturity in which they can receive the instruction of ethical culture.

The book contains nothing that could be called startling or new, except in

omitting the powerful impulses of religious enthusiasm. Even the societies for ethical culture will hesitate to introduce or recommend it, for it seems only to reveal the unsatisfactory character of ethics based simply on sentimentality and separated as a matter of principle from religion and philosophy. P. C.

SOZIALPÄDAGOGIK. Theorie der Willenserziehung auf der Grundlage der Gemeinschaft. Von *Paul Natorp*. Stuttgart: Fr. Frommanns Verlag (E. Hauff). 1899.

Paul Natorp, Professor of Philosophy in the University of Marburg and Editor of the *Archiv für systematische Philosophie*, published some time ago a series of articles on the theory of character formation, which are here reproduced in book form, not, however, without a careful revision, the result of which is that many parts have been recast, and the whole has been systematised and rearranged. Natorp is not only a thinker but an enthusiastic reformer. He comprehends the social unrest of the time, and loves to view ethics from a sociological aspect. Without being himself a socialist, he endeavors to discover the duties of the individual toward the whole, and thus he regards the formation of character as a social pedagogics consisting in an extension of the sphere of self and serving as a basis for the common interests of society (pp. 68 ff.). The main ideals of his ethics as a sociological philosophy are based upon Platonism. The virtue of reason is truthfulness; of the will, energy; of the senses and instincts, purity or continence; of social relations, justice (Part II., p. 83–192). The third part of this book sets forth Natorp's method of education of the will in the house, in the family, and in life, through communion with others. History must be so taught as to impart conviction, and ethics should become an independent branch of instruction. Religion is the domain of sentiment, and far from disregarding it, Natorp proposes to cultivate and purify it.

P. C.

CORRIGENDA (*The Monist*, Vol. IX. No 1).

Page 44, line 12, from the top, insert comma (,) after *mooted*.
Page 44, line 13, delete comma (,) after 1896.
Page 50, line 4 from above, place a dot over the 1.
Page 54, line 17 from the bottom, for $\mathfrak{z}$ write $\mathfrak{z}$.
Page 54, line 9 from the bottom, substitute $\preccurlyeq$ for $\succcurlyeq$.
Page 55, line 4 from the top, cancel the x next to the last.
Page 56, line 7 from the top, instead of *notions* read *notion*.
Page 57, line 16 from the top, insert *of* after *expression*.
Page 58, line 16 from the top, insert semicolon (;) after $\mathfrak{m}$.
Page 62, line 15 from the end, behind 1) replace the comma by a colon (:)

E. SCHROEDER.

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THE MONIST

THE PRIMITIVE INHABITANTS OF EUROPE.[1]

IT WOULD be strange if it were not of such common occurrence in science, that early conceptions not only continue by force of inertia to form the foundation of successive explanations but also acquire an almost invincible resistance to new conceptions and discoveries and seem to be ineradicable. Hence, those who in the progress of science, in the discovery of new facts and in the new interpretations of them, attempt to lay bare the foundation of an old system find that they have assumed a very difficult task. For if to some who follow the progress of knowledge new inductions are not difficult to assimilate, the majority of those who make pretensions to knowledge are not shaken by new ideas, for the simple reason that they are incapable of comprehending them, and they therefore oppose them with great obstinacy, as if their knowledge were absolute and incontrovertible. From this it happens that it is very difficult in spite of the clearest of demonstrations to destroy the errors with which scientific tradition was early inoculated and which have become in some instances the basis of a system.

All this is natural, however, because to turn the mind in a direction not acquired and habitual requires an effort. Hence from mere mental indolence men are not disposed to change their thought

[1] Translated from the manuscript of Prof. Sergi by I. W. Howerth, Ph. D., of the University of Chicago.

and, content to follow in the old paths, are irritated by those who constrain them to follow others.

This fact is constantly being illustrated at all times and in every science. The Darwinian hypothesis alone seems to form an exception, for its acceptation was at its appearance almost universal, there being but few obstacles in the way of it. But this is easily explained, for the minds of those who were interested in the great problem had been prepared by the work of almost half a century, especially by that of Lamarck and Saint Hilaire who, as we all know, had been struggling for such ideas but without success.

These considerations will help one to comprehend the difficulty which is to-day encountered in the treatment of the problem of the primitive inhabitants of Europe with reference to their physical characters and their civilisation; for the numerous recent discoveries and the new methods of research lead to conclusions almost diametrically opposed to the old ones now rooted and established as incontrovertible facts. In spite of the difficulty, however, we shall attempt to enter upon a new path.

I.

De Quatrefages, the most eminent anthropologist of France, risked a general synthesis in regard to the primitive inhabitants of Europe. Broadminded and with keen insight, he was the superior of Broca who occupied himself with particular data of anthropology, of which science he is in France the founder, and only a few times attempted a synthesis of certain scattered and in his time not well-ascertained facts. Perhaps this indicates his prudence, which is a superior quality of the well-balanced mind; but it is useful, perhaps even necessary, that from the midst of facts which appear unrelated there should arise a synthesis, even though it be only provisional, which shall become the starting-point for further investigations and explanations, useful in the progress of knowledge.

The work of De Quatrefages was continuous and even progressive, but always in the same sense and in the same direction. Any one who reads his works on the human species, the skulls of the

human races, fossil and primitive man, will find in them but few changes and the same general direction of ideas and assertions.

When he wrote, corrections had not been made upon the noteworthy discoveries at Cro-Magnon, Grenelle, Furfooz and elsewhere, and he, like other anthropologists and ethnologists, believed them Quaternary. With such opinions, which were those of his time, he reconstructed the primitive Quaternary races and established six of them, that is, the Cannstatt, the Cro-Magnon, the mesocephalic and the sub-brachycephalic of Furfooz, the Grenelle and finally the race of Truchere. "All these races belonged to the Quaternary age which immediately precedes our own."[1]

The so-called Tertiary man, according to De Quatrefages, was the precursor of the first man, and of the race of Cannstatt itself. Not being an evolutionist he did not, with G. de Mortillet, admit as a precursor a being intermediate between man and the ape. He accepted the man of Castenedolo, the discoveries of Burgeois, and those of Capellini in Tuscany as evidences of Pliocene man.

Hence he admitted a continuation of the Cro-Magnon race into the Neolithic age, against the assertions of De Baye, Hamy, Broca and others, based chiefly upon the hand implements of the Cro-Magnon man, which are not different from those of the Neolithic age, and he had some reason for doing so, because in that time the Cro-Magnon race was believed to be Quaternary. It is therefore to the credit of his sagacity that he admits the persistence of the Quaternary populations, such as he believed them and named them, and did not accept the hiatus between the Paleolithic and the Neolithic age, admitted by all his contemporaries including Mortillet himself. Time has proven that he was right, for the discoveries of Piette concerning a Pre-Neolithic man confirm the opinion of the anthropologist of the Museum of Natural History. Among his most eminent co-laborers was Hamy now his successor in the chair at the Museum.[2]

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[1] *Hommes fossiles et hommes sauvages.* Paris, 1884, p. 59.

[2] De Quatrefages, *L'espèce humaine.* Paris, 1871. *Histoire générale des races humaines.* Paris, 1889. De Quatrefages and Hamy, *Crania ethnica.* Paris, 1882.

Many corrections must be made as to the discoveries called Quaternary, Cro-Magnon, Grenelle, Furfooz and others. Very few remains of that primitive time, only some fragments, bear testimony to the physical forms of man. In spite of recent doubts the Neanderthal skull remains and stands as a witness to the ancient Quaternary race, and there are also some skeletons with various fragments of the Magdalenian age, a Quaternary epoch relatively more recent; that is, it belongs to the interval between the ancient Paleolithic and Neolithic ages. The Cro-Magnon, Grenelle and Furfooz types are Neolithic and belong to different periods.

Many theories originating with De Quatrefages and others are seen to fall to pieces when it is admitted that the skulls of Grenelle Truchere, and of Trou-du-frontal do not belong to the Quaternary period. This is the case with the theory of a Quaternary brachycephalic race and the hypothesis of its origin, because only in the remains of the Neolithic burying grounds of recent times do the brachycephalic skulls appear.

Of the French anthropologists who after De Quatrefages attempted a synthesis in regard to the primitive inhabitants of Europe, De Mortillet, Hervé, and Salmon are the most noteworthy, and are those among whom is the least disagreement in regard to dates and explanations.

Salmon divides the age of stone into three great periods: the Paleolithic Quaternary, the Mesolithic, by which he characterises the Magdalenian epoch, and the Neolithic. In regard to human types characterised by cranial types, he accepts the division of Hervé for the Quaternary. That is, he divides the first period of the Paleolithic or Quaternary age into lower, middle, and upper, distinguished in the epochs already known as Chelle, Moustier, and Magdalenian. He affirms that we know nothing of the man of the lower Quaternary period, but that we know something of that of the middle and upper by means of the skulls of Spy, Laugerie-Basse, and Chancelade.

The Magdalenian form of Laugerie-Chancelade survived the Mesolithic transition and transmitted itself to the more ancient Neolithic form of Baumes-Chaudes. This type was followed by the

brachycephalic race of Gallia which immigrated before the Neolithic dolichocephalic, and is principally that of Grenelle. Finally appeared the Neolithic dolichocephalic, which was a new immigration, and brought new elements into the civilisation of the polished stone age.[1]

Hervé found that the Magdalenian race continued into the Neolithic age and is represented in Baumes-Chaudes-Cro-Magnon as a differentiation of the type of Chancelade, which has nothing in common with that of Neanderthal. As to the brachycephalic type Hervé believes that it represents an immigration chiefly at the beginning of the present epoch, of which the brachycephalic race of Grenelle, now diffused over a large part of occidental Europe, represents the advance guard. During the Neolithic age this element was mingled with an ancient race having elongated skulls.[2]

According to De Mortillet the matter is quite different. A thoroughgoing evolutionist, he believes that the race of Neanderthal and Spy is continued in the forms of Laugerie and Chancelade which are a transformation of the well-known Quaternary type. There followed a brachycephalic race, that already admitted by Hervé and Salmon, and the appearance of the ancient dolichocephalic race. So, according to the eminent French anthropologist, there has been a formation of Neolithic races upon the basis of the transformation of the early Quaternary type of Neanderthal and Spy. This opinion of De Mortillet is not accepted either in France or elsewhere, although he maintains it at great length.[3]

Apparently the problem of the ancient races is simplified by the French anthropologists, because it seems that they are reduced

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[1] Salmon, *Sur l'utilité de la nouvelle division paléthnologique de l'âge de la pierre. Bull. Soc. Dauphinoise d'éthnologie*, etc. Grenoble, 1894.

Ibid., Dénombrement et types des races néolithiques de la Gaule. Revue mensuelle d'Anthropologie. Paris, 1895.

[2] Hervé, *La race des troglodytes magdaleniens. Revue de l'Ecole d'Anthropologie*, 1893.

Ibid., Distribution en France de la race néolithique de Baumes-Chaudes. Revue, cit. 1894.

[3] *Précis d'anthropologie*, p. 372. Paris, 1887.

Ibid., Les brachycéphales néolithiques. Revue, cit. 1894–1895.

to four, namely, the primitive dolichocephalic race, rightly called Quaternary and illustrated by that of Neanderthal and Spy; the Mesolithic, also Quaternary but more recent (that of Chancelade and Laugerie); third, the brachycephalic of the Grenelle type, and fourth, the Neolithic dolichocephalic race appearing recently and represented by the cranium of Genay (Côte d'Or). But this is an illusion, and we shall see that there are many complications and many divisions which, however, are in part reduced by Hervé after a particular analysis of the craniums of the brachycephalic type. In *Crania Ethnica* there are mentioned four types of four races with this brachycephalic character. Hervé reduces the Neolithic morphological types of Furfooz and Grenelle to three, of which the two types of Furfooz represent sub-types and varieties due to crossing with the indigenous element. The Grenelle is the first race to which the name Neolithic brachycephalic should be applied.[1] The two types of Furfooz, one sub-brachycephalic and the other mesaticephalic, derived according to Hervé from the pure brachycephalic of Grenelle, are widely distributed, extending even to the Mediterranean. Where the brachycephalic and the sub-brachycephalic exist there are found also the mesaticephalic, but the former are not so numerous as the latter, since the mesaticephalic extends over an area which surpasses very much the limits of the other three forms.

How could a large number of the mesaticephalic be found where there are no brachycephalic from which they could have originated? Hervé explains the phenomenon thus: the brachycephalic which are found in two principal regions, the Belgic and Allobrogic as he calls them, could only have reached in that area of the mesaticephalic a small number, and would have been absorbed by the population with long skulls, leaving a number of halfbreeds as the mesaticephalic. The eminent anthropologist must permit me to say that this is a strange theory, due to an error in principle, that is, that the mesocephalic are a product of crossing. If the pure types were absorbed, I do not see how they could have resisted the halfbreeds, for it is known that the types which

[1] Hervé, *Les brachycéphales néolithiques, cit.*

are affected by crossing are eliminated on the reappearance of the pure type. According to my view the mesocephalic are as original as the dolichocephalic and brachycephalic.

According to De Quatrefages the brachycephalic race of Grenelle, which he believes to be Quaternary, are the Lapps. Even Hervé and other French anthropologists assume a Lapp immigration. The difference between De Quatrefages and others is only in the epoch, which is now believed to be Neolithic, but toward the end, if not really at the end of it, and at the beginning of the age of metals.

But it is important to know the origin of the Magdalenian races, according to Hervé, Salmon, and others. We remember that they are summed up in the name Chancelade-Cro-Magnon-Baumes-Chaudes. De Quatrefages and Hamy agree with Verneau in assuming that the Cro-Magnon, then believed Quaternary, emigrated from the north and occupied the basin of the Mediterranean with Northern Africa, not including Egypt and the Canary Islands. This is the so-called hyperboreal theory which Hamy, writing on human paleontology, maintained, but later abandoned. Now Hervé and others mention it complacently but complain that Hamy has abandoned it as any part of a true anthropology. Hervé reappears as an advocate of the old hyperboreal theory, basing it upon the observations of Testut upon the man of Chancelade principally, and upon certain other indices of an ethnological character.

At Chancelade in Dordogna was discovered a Quaternary deposit of the epoch called Magdalenian and in it a human skeleton. From a study of this skeleton made by Testut[1] it appears that the skull has a capacity of 1730 cubic centimetres, a length of 193 millimetres, a breadth of 139, and a height of 150, with the indices of 72.021 and of 77.7 respectively. The face has a bizygomatic breadth of 140 millimetres, a height of 77 with an index of 55. The nose has an index of 42.6. Hence the cranium is dolicocephalic, ipsicephalic, leptoprosopic, leptorhine. The author declares that the skull has the characters of a superior race, but along with this

[1] *Recherches* etc. *Bull. Soc. Anthrop. de Lyon.* Vol. VIII. 1890.

cranium with so enormous a capacity he attributes a stature of 1.50 metres, according to his calculations. New calculations place it at 1.592 metres, which is always too low.

But Testut observes that this cranial type has nothing in common with that of Neanderthal and Spy, although it is completely analogous with the craniums of Cro-Magnon and Sordes, of *L'homme-mort* and Laugerie-Basse, whether these be referred to the upper Quaternary or to the Neolithic. Toward the end of his work he asks whether the man of Chancelade belongs to the same ethnical type of man as the Cro-Magnon and answers the question in the negative for the following reasons: The man of Cro-Magnon had a stature of 1.80 to 1.90 metres, while that of Chancelade had a stature of 1.50 (1.592). The first had a face with a bizygomatic diameter of 143 millimetres, the other a long face with a bizygomatic diameter of 140, the height being greater in that of Chancelade.

These are, indeed, wide differences, and among them the most important are those of stature and facial indices. So far as the former are concerned we do not know the explanation, for normally a cranium of such great capacity is united to so low a stature only when it may be suspected from the form and the incurvation of the femur, an excess of relative development in the upper extremities over the lower, the great dimensions of the feet, and other facts and indices of abnormality. There is here a suggestion of a rickety and deformed skeleton. But Testut finds analogies between the skull of Chancelade and that of the Esquimeau, and refers us to a series of cephalic indices. Apart from the fact, which I have so many times proven, that with measurements and indices the most diverse forms may be brought together and the most homogeneous forms separated, I could show, if this were the place for it, that indices of 77 and 80 for the height of skull are common in craniums of Northern and Eastern Africa including ancient Egypt, and I could show a series of skulls from the eighth century B. C. from the discoveries of Novilara (Pesaro) in which the form of the head (stegoides) is common to many of those having a facial index of 55 to 60, and with forms in the *norma verticalis*, very similar to that of

Chancelade, and which I have called *pelasgicus*. So that the skull of Chancelade appears to me to be pelasgicus stegoides of the ellipsoids, which are found even to-day in Eastern Africa. Why refer to the Esquimeaux a cranium found so near the Mediterranean? According to Testut himself has not the cranium of Chancelade complete analogies with the others of Cro-Magnon and Sordes and Laugerie? Perhaps it is only as to the cephalic index that Mortillet finds a resemblance between that of Chancelade and those of Neanderthal and Spy. So far as that is concerned it appears to me that he is quite right in doing so.

Hervé takes up again the problem of the Magdalenian race and separating it from the type of Neanderthal and Spy, accepting the conclusions of Testut upon the origin and type of Chancelade, and finds its continuation at Laugerie, Cro-Magnon, and Sordes; that is, a descent of the Magdalenian race down to the Neolithic age, and he confirms the hypothesis of Testut upon its northern origin, referring to certain products of industry of the Magdalenian epoch analogous to those of the northern populations like the Esquimeaux and others.[1]

So according to the French anthropologists the race which populated Europe of the Quaternary epoch must either have been derived by a transformation of the type of Neanderthal and Spy, as Mortillet believes, or must have come from the polar regions, the ancestors of the Lapps and the Esquimeaux.

The German anthropologists have no general theories concerning the primitive inhabitants of Europe. Many of them weary themselves in investigations concerning the Aryans, especially the Germanic Aryans, but they have not succeeded, because they obstinately consider as Germanic Aryans the northern tall, blonde types with long skulls, the so-called Reihengräber type. Virchow has expressed a series of opinions not always consistent, and now thinks he has found in the type of Neanderthal the primitive characteristics of the Reihengräber. Now he thinks that the dolichocephalic and the brachycephalic division of the Germans is a differ-

[1] Hervé. *La race des troglodytes magdaleniens, cit.*

entiation from a single primitive type, as the different forms of language are derived from a single linguistic stock; now, that the Germans may have originated from two types, and again other opinions are expressed which show the uncertainty of the author's criterion.[1]

Ecker before and Von Hölder after[2] thought that they had established definitely the Germanic type of Reihengräber. Concerning this epoch, always investigating the Aryans, there are some books, but they are by linguists, not by anthropologists, as for instance those of Geiger, Pösche, Penka, and Taylor, whose works have no value as anthropological demonstrations. In two Germans, Pösche and Penka, is found an effort to demonstrate the origin of the Germans, and with it the northern European origin of the stirps which populated the whole of Europe and is still diffused over northern Africa. In Taylor there is found an attempt to demonstrate the pre-eminence of the physical type with short head over that with a long head. But in both these writers there is a want of anthropological science. In consequence we find gratuitous hypotheses frequently contrary to ascertained facts.[3] It is useless, therefore, to take account of them.

II.

One of the principal and most characteristic defects of anthropologists in all countries consists in their lack of taxonomic method, a lack, that is, of a criterion of classification. The cephalic indices are not sufficient, as I have often repeated and demonstrated, and frequently anthropologists abuse them, or consider them secondary, without substituting a suitable and certain character. If we should

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[1] Virchow, *Beiträge zur physischen Anthropologie des Deutschen.* Berlin, 1877.

Ibid. Gesammtberichte, etc., in *Archiv. für Anthrop.* XVI, 1886.

Ibid. Rassenbildung und Erblichkeit. Festschrift für Bastian. Berlin, 1896.

[2] Ecker, *Crania Germanica merid. occid.* Freiburg, 1865. Hölder, *Zusammenstellung der in Württemberg vorkommenden Schädelformen.* Stuttgart, 1876.

[3] Compare Sergi, *Origine e diffusione della stirpe mediterranea.* Rome, 1895. See German translation, Leipzig, 1897.

demand from Hervé and Salmon the calculable and convincing difference between the Magdalenian dolichocephalic and the other Neolithic races they could not give it. The numerical variations of a certain unit do not constitute differences of races. An index of 74 is not different from one of 76 or 77 in ethnical signification. I believe it would be absurd to assume such a thing. While it is generally admitted that the cranial type of Neanderthal is different from that of Cro-Magnon and similar types, De Mortillet, who confines himself to the indices, has some reason for considering it to belong to the same race as the other, and given his methods the objections to such classification are unjustified. He is right.

But notice what is now thought as to the form of the cranium. A skull with a wedge-shaped occiput is considered different from another with a rounded occiput in spite of the uniformity of the cephalic index. Thus the skull of Chancelade is referred to the Esquimeau type by the cephalic index and by its capacity, and there is no account taken of the fact that craniums identical with it in type are found in Egypt, in Eastern Africa, in the Canaries, and in Italy. Is it from the North Pole that Europe and a part of Africa have been populated? Are the Egyptians of Esquimeau origin? Has there been a sudden displacement of the axes of the earth so that the equator became the polar circle? I do not see how such an hypothesis on the northern origin of the European peoples, which overthrows the ideas of the origin not only of man but of all our fauna and flora, can be sustained.

A Scandinavian naturalist in a work upon the fauna and flora of that peninsula confirms the idea that Scandinavia was not inhabited before the Neolithic epoch. There is almost no vestige of a Paleolithic man, and the bearers of Neolithic culture, he writes, must have immigrated from Africa or from the Iberian peninsula, but such immigration must have been in relation to and in harmony with the increased temperature of the European climate after the glacial period.[1]

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[1] Krause, *Die Anfänge der Kultur in Skandinavien.* Globus LXXI, 9, Feb. 27, 1897.

This assertion is in perfect agreement with prehistoric data, according to Montelius, an authority the exactness of whose observations is not suspected.[1] If therefore by reason of the temperature of Europe it could not have been inhabited by man before the Glacial epoch, it is difficult to see how there could have come into central and southern Europe a race born at the north in the Quaternary epoch. If, according to Testut and Hervé, Chancelade, Laugeries-Basse and other places have a man of Esquimau type, and if the hand implements of Laugerie are also of northern type, there must have been an immigration from the north to the south in that remote epoch, and man must have been born in an uninhabitable climate worse than the present climate in the same region. But the cephalic indices are characters of race, so the eminent French anthropologists believe, and they must yield to these no matter whether the most important facts contradict cranial measurements or not.

Nor do we believe the other criterion now advanced, exact; that is, that all the physical and psychological characters of man must be united in order to establish the classification of races. This was lately attempted by Keane,[2] and it will suffice to cast a glance at his résumé to perceive the error of his method and the inadmissibility of his criterion.[3] For instance, the ideal Caucasian type has white and brown skin, is dolichocephalic and brachycephalic, has blue and dark eyes, stature great and small, hair of all forms and colors, language inflected and agglutinated, is monotheistic, Christian, Mahomedan, Hebrew, etc. It cannot be classified in this way, it appears to me, and if zoölogists followed this method they would still be in the condition they occupied before the time of Linnaeus.

I have argued for many years that it is necessary to choose

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[1] Montelius, *De Forhistoriska Perioderna i Skandinavien.* Manadsblad, 1893. Stockholm, 1897.

Ibid., Les temps préhistoriques en Suède et dans les anciens pays Scandinaves. Paris, 1895, p. 11.

[2] *Ethnology.* Cambridge, 1896. second edition.

[3] *Op. cit.*, p. 228.

one character and classify by means of that, to complete the classification, or better the types classified, with the other characters which may be found. But the character chosen as a means of classification must be constant, persistent, suitable, and then other characters may serve to complete the established type. And I have found this special character in the form of the skull, in spite of the variations which it may present, because I see in it a stability, even from the earliest appearance of man, as a trustworthy indication of man in the prehistoric ages, and the method has proved its value in its practical applications, and in my belief has already succeeded in establishing certain human groups with that certainty which is derived from numerous homogeneous observations.[1] I shall adopt the same criterion in delineating the natural history of the primitive inhabitants of Europe.

III.

It is generally admitted that the Neanderthal remains are the most ancient witness of man with his osteological characters well defined which has appeared in Europe, but I wish to leave in abeyance the problem of Tertiary man, in order to speak of the Quaternary. If the human remains of Castenedolo represent Tertiary man of the Pliocene epoch, I am not astonished at not finding it of an inferior type. There does not appear to me to have been an intermediate type, because the transitional types could not have survived. The *pithecanthropus* of Sumatra is an animal, having human characteristics to be sure, but it is not a man nor is it an intermediate type. It is a type higher than other anthropomorphic forms. Evolution will doubtless present a species which represents degrees of elevation in form and in structure, but no transitory types. Hence it appears to me that the *pithecanthropus* is not a human precursor in the sense of De Mortillet, nor is the Neanderthal man a species derived from it, and from which has evolved successive European forms, such as are visible in the man of Chancelade and of Cro-Magnon. The Neanderthal man seems to me to be a distinct species, the most ancient known in the Quaternary age, which appears

[1] Compare my work *Africa*, Turin, Bocca, 1897.

in successive epochs, leaving few but certain indications of its existence even in the present epoch.

The *homo Neanderthalensis* is, according to my opinion, and according to the criteria established by me elsewhere[1] for human classification, a European species. It originated in Europe in the primitive Quaternary epoch, perhaps in the latest Tertiary period. Nothing has been determined in regard to this yet, and no one is able to determine. It may be seen in the caves of Neanderthal and Spy and in other places of central Europe. I do not believe that the skull of the Isola del Liri described by Nicolucci is Quaternary. It is a form common to the most recent Europeans, as in the skulls of Italy, and is, I believe, one of the forms of the species *Eurafricana.* Even the skull of Olmo, now believed to be Tertiary, is doubtful, and from its indices seems to belong to the Bronze Age. Its forms were not constructed normally by sudden deformities. The *homo Neanderthalensis* did not descend to the south of Europe. It is found only north of the Alps, and in England, if we accept the remains of Tillbury and Linnet as Neanderthalensian.

It is worth while to point out that the *homo Neanderthalensis* has not yet completely disappeared in Europe, in spite of its displacement by a new species which, as we shall see, came from the south of Africa but extended into the region of the Baltic, and into Friesland, as Spengel has shown.[2] De Quatrefages admits the survival. Davis shows some examples of the fact, and in certain skulls of Friesland studied by Sasse and Virchow[3] we find the Neanderthal type, and it may also be shown to exist mixed with other races, in other regions of central Europe, as in the Austrian provinces.[4]

As to the survival of the Neanderthal type, it is useful for many reasons to indicate it, because it will show the persistence of

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[1] See my *Africa*, Chapter 20.

[2] Spengel, *Schädel von Neanderthaltypus. Archiv. für Anthrop.* VIII, 1875.

[3] Sasse, *Schädel aus dem nordholländischen West-Friesland. Archiv. cit.*, IX, 1876. Virchow, *Beiträge, cit.*

[4] In a series of skulls of Styria and Carniola are found Neanderthal forms which I shall consider elsewhere.

cranial forms through so many centuries and in spite of mixing with other species, and because it will show further that the subsequent and prevailing forms of which others, including Penka do not speak, are not derived from that of Neanderthal, as De Mortillet maintains on other grounds and for another scientific purpose. All this seems reasonable to us on account of those principles for which we have argued a long time, and among which is that of the persistence of forms.

IV.

From some studies and observations upon the physical characters of the few remains of the upper Quaternary, as at Chancelade, and upon some Neolithic remains of Europe and Egypt, brought to light some years ago through the work of Flinders Petrie and De Morgan,[1] I have come to the conclusion that subsequently to the *homo Neanderthalensis* of European origin, towards the Magdalenian epoch of the French, there was an immigration into Europe of a new human type from Africa. In another place I will show that the facts and the civilisation, especially in the Neolithic age, point to this immigration, but for the present I shall occupy myself only with populations.

My wide observations have shown me that a new stirp after that of Neanderthal has populated Europe and Africa from the Mediterranean to the equator, from the east to the west, and also the Canaries, and for this reason I have named it the *Eurafricana* on account of its geographic distribution, and also from its homogeneity, persisting through so many centuries upon soil where it has multiplied, and upon which it still forms for many regions the basis of the modern population. I have also named this species *Eurafricana* on account of its physical characteristics which survived for some time in Europe with the Neanderthal species, that is, until the latter disappeared before a new and powerful invasion leaving few remains or survivors, as has already been seen.

The dominion of the Eurafrican species was for some time

[1] De Morgan, *Recherches sur les origines de l'Egypte.* Paris, 1896, 1897.

almost absolute, that is almost to the end of the Neolithic period and up to the beginning of the age of metals, by which time the third human species arrived, which was unable to destroy the Eurafrican but either displaced it in certain localities or was mingled with it. It came from Asia, as I shall show, and is called by me *Eurasica*. To-day the one and the other, mixed in different proportions, or almost isolated, form the European populations.[1]

Let us pause here to consider the Eurafrican species.

All the Neolithic skulls which belong to it and are called dolichocephalic and mesocephalic by the anthropologists, have different forms according to their architecture, but this difference of form does not imply a different origin, as the French anthropologists believe. Skulls *à chignon*, and skulls rounded at the back, as they are distinguished, are not of different races, nor are dolicocephalic skulls different in race and origin from the mesocephalic, as the French have always maintained. I cannot understand why it should be thought that skulls having a difference in the cephalic index of one or two units are of different races when they are of the same form, as for instance one of 74.5 and another of 76.5. By this criterion the human races are multiplied to an indefinite number. This happens, it is easy to see, in classifying the Neolithic skulls of Egypt whose anthropology is profoundly altered by this criterion.[2]

I have succeeded in establishing a classification of the Mediterranean stock by means of cranial forms, cerebral or facial, and have then compared these forms with those of the Neolithic age, and have seen the perfect correspondence between them. By means of the same comparison of forms in the ancient and modern people of Europe, I have seen the cranial forms of a species reappear even where the crossing through immigration and invasion has been frequent and continued. Even Scandinavia, populated, as I have said, in the Neolithic epoch, shows cranial forms identical with those of the Mediterranean stock of the Neolithic age, and with

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[1] Compare my works *Africa*, and *Arii e Italici*, Turin, Bocca, 1897, 1898.

[2] De Morgan, *Recherches, etc., cit.*

those of Western Europe and Great Britain. The type called by the Germans Reihengräber corresponds perfectly and completely to the type, or rather to the types, of the Mediterranean and the Neolithic stock, as even the German anthropologists themselves have shown from their Neolithic tombs.[1]

Now there is no doubt that the identity of these typical forms must be referred to a unity of origin, and I will say to a unity of species, namely, that already called *Eurafricana* on account of its origin and its diffusion in Africa and in Europe.

By our classification we have reduced the cranial types of the *Eurafricana* to a few varieties always converging, both in ancient and in modern times. Predominating in it are the ellipsoidal, ovoidal, and pentagonal forms, either dolichocephalic or mesocephalic. The facial forms are also ellipsoidal, ovoidal, and pentagonal, even triangular, the principal forms being equally common and distributed over all those territories where the species is diffused. For the other rather rare forms I refer the reader to my works, especially to my work on Africa.

Now the convergence of such varieties of cranial and facial forms are not only encountered in the three forms above named, but, what is more remarkable, even in the sub-forms or sub-varieties, that is, in the particular divisions in which the cranial forms may be distinguished. It is a curious and significant fact that these cranial sub-forms preserve a similarity through enormous distances of space and time, that is, from the Neolithic to the modern epoch, and from Africa to central and northern Europe, as for instance in Scandinavia. The pentagonal, ellipsoidal, and ovoidal forms of neolithic Egypt are identical with the corresponding forms of Scandinavia, and with the corresponding forms of Italy, ancient and modern, and all the basin of the Mediterranean.

This fact, which I have often shown, and indicated in various ways, justifies the classification of the cranial forms above named, which in reality are varieties of a single primitive type, under a

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[1] Compare von Hölder, *op. cit.*; and Sergi, *Ueber den sogenannten Reihengräbertypus, Centralblatt für Anthrop.*, 1898.

single species; and we shall find it in another species producing itself under the same circumstances and conditions. And this very fact leads me to insist that for the classification of man, as for that of other animals, we must make use of constant and persistent characters and not of all those characters which may be found in man collectively, as up to the present time some have maintained. A principal, constant, and invariable character, as the bones of the skull and face have shown themselves to be, is not only sufficient but it is the only criterion for determining a species. This is recognised by zoölogists, and it must also be followed by the anthropologists unless they wish to continue in a condition of vagueness and uncertainty.

V.

If we admit that the species *Eurafricana* lived in the upper Quaternary period, in the epoch called Magdalenian, as the skeleton of Chancelade shows, we have a fixed point from which to establish its immigration from Africa into Europe, its successive diffusion over Europe and its continuation into the Neolithic period, and even into recent times, without having undergone sudden variations of form in head and face. For if the bones of the head have undergone some variations in their anatomical character, due to conditions of life and physical environment, such variations would not have altered the forms considered in their general structure, nor should we always find forms identical in all the series of epochs, and in all the regions where the species is diffused.

But the persistence of the forms of the skeleton, especially of the head and face, more easily verified in researches and by which we have been able to reconstruct the species *Eurafricana*, encounter many difficulties on the part of anthropologists on account of the difference of many external characteristics, such as the different colorations of the skin, and of the hair and eyes especially, which are encountered in the same species, proceeding from the equator to the Mediterranean and from the Mediterranean to the Scandinavian peninsula. We find with reddish brown or black skin in equatorial Africa black hair and eyes, while in the Mediterranean the

brown skin prevails more or less clear, along with eyes from dark to chestnut, and with hair chestnut, rarely black. In the north of Europe the skin is white, the hair blond, and the eyes clear and blue for the most part, or gray in certain people who are commonly called Germanic, dolichocephalic, in which we find the characters of the skull of the same structure as that of the Eurafrican species, the types of Reihengräber.

But this does not imply any difficulty in regard to the unity of species, though it is necessary that I record a distinction made by me, and upon which I have insisted for many years, between the internal characters, that is the skeleton, and the external characters which are those like the coloration of the cutaneous pigment. The first are unalterable; the second undergo the influence of external conditions and hence are mutable, at least after a long period of time. In another place I have discussed this problem at length,[1] and I shall not consider it here, but I have revealed the fact that in Africa it is the external characters and those which I have denominated intermediate, the muscular tissue for instance, which are dependent upon various conditions of soil, climate, and alimentation, and even upon the kind of life of the inhabitants. I have also brought to light that the gradation of colors of the skin and its appendages is distributed in our species according to the temperature and altitude. If, now, there had not been a mixing, or a displacement of population, a certain uniformity in distribution would be seen in accordance with the light or dark coloration of the skin. The fact remains that the type of coloration once established after a long operation of constant influences assumes a stability as if it were originally native and not affected by a long-continued action of external agents. This is a fact now established beyond a doubt, because in the different displacements which populations have undergone, mixing themselves everywhere and under every condition, the color of the skin and the hair remains unchanged.

The external characters of the species *Eurafricana* enable us to distinguish in it three races which originally must have been

[1] Compare *Africa*, Chapter X and XX.

formed almost in the same places and in the same regions where to-day reside the most numerous masses which represent them. We call, and we shall continue to call, the African race that which has the color of the skin and its appendages very intense, that is black, reddish brown, and reddish black. It may be distinguished, therefore, from those other African negroes and negroids which have skeletons different from those we assign to the *Eurafricana*. In this African race are included the Begia, the Abyssinians, the Galla, the Somali, the Masai, the Wahuma, the Fulbi and other types.[1] We call that race or stock Mediterranean[2] which inhabited and which still inhabits in great numbers the basin of the Mediterranean, which includes that part of Europe bordering upon this sea, a part of western Asia, Egypt, and Morocco, the Canaries, and the region of the Sahara. The color of the skin is brown, and the eyes and hair usually chestnut. This Mediterranean race must have extended itself toward the centre and west of Europe, preserving the same external characteristics acquired in the regions first occupied. The third race, which may be called *Nordica* or Northern race, was formed in northern Europe. It is difficult to assign to it a southern limit, but it is that blonde type, with blue eyes, known to-day as the Germanic, also the Reihengräber type.[3]

If we think that the immigration from Africa into Europe took place in the Quaternary epoch, and remember the centuries which have elapsed, and the different conditions of climate and soil of the various regions occupied, we ought to find no difficulty in conceiving the formation of these three great human divisions, or of these great races, each preserving unaltered its cranial and facial characters but modified in external characters, and especially in coloration. What, indeed, is this modification if not the discoloration of the pigment through the less powerful action of the rays of the sun upon the skin and its appendages? This lesser action continued for about 200000 years or more might produce such effects, although

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[1] *Africa, cit.*

[2] *Origine e diffusione della stirpe Mediterranea, cit.*

[3] See *Arii e Italici, cit.*

in a shorter time, a thousand or even two thousand years, its effect might be inappreciable. It is impossible, of course, that a negro at the pole should become blonde, or a blonde at the equator become black, by remaining there during his life. That is, it is impossible that phenomena which demand a very long time should be produced under our direct observation, and, conversely, characteristics acquired and become established are not changed by a change of place or by a mixing with other stocks.

This species *Eurafricana* appears difficult to recognise on account of the great and continuous mixing which it has undergone, and on account of the different ethnical names which have obscured its origin, as well as on account of the different colors in the same region, and because by the color there has been given the index to races and stocks without recognising the fact that a more stable characteristic may be found, more universal, independent of external action, namely that of the skeleton which constitutes the true type of the species. A brief analysis might distinguish and separate in the populations of Europe the Eurafrican elements from those with which they are mingled.

We may then admit that the first inhabitants of Europe were the men of the Neanderthal species, and that these were followed by the Eurafrican which in the later Quaternary or Magdalenian epoch was diffused over habitable Europe, and hence in the Neolithic age was distributed north and south from the Mediterranean to Scandinavia, east and west over all Europe and in Great Britain, preserving constantly the same physical characteristics, above all in the only ones which we are able to recognise as of that epoch. We are not able therefore to accept the results of the French anthropologists who by an artificial method find many races differing in their physical characters, and of northern origin.

VI.

To the use of stone succeeded that of metals, and pure copper began to appear in the Neolithic period. This age of transition in the use of copper has been called by us in Italy the Æneolithic, to

signify the use of polished stone along with copper. To-day in all Europe it is recognised that there was an epoch of a great civilisation, superior for many reasons at its first appearance to that following the use of bronze together with a new human stock which appears to have imported it. I shall give attention to this subject on another occasion. Now I come anew to the inhabitants of Europe in regard to their anthropological characters.

The Neolithic remains of Europe like those of Egypt, which bear so great resemblance to them, have undergone inhumation, so that we have been able to ascertain the nature of the skeletons in that epoch, and I have already described above the types which are found there. Now toward the end of the Neolithic age, along with those skeletons which bear the marks of the Eurafrican species, are found others with different characters, recognisable especially in the skull. One of these characters is measurable, being that of a high cephalic index, that is, it indicates a brachycephalic race. We have seen that the French anthropologists recognize a Neolithic brachycephalic form, and in considerable numbers, about twenty-one per cent. according to the calculations of Salmon. The epoch is not well defined. Naturally it should be recent and perhaps co-existent with the introduction of metals. That metals are not found in this age of transition among the remains is not to be wondered at when one thinks that at that time they must have been scarce. Toward the end of this epoch there was an infiltration of a new race into Europe, made in a pacific way because no change is found in the customs and civilisation, anything new that was introduced being of little importance. At all events it brought with it no profound change.

This new race had a large and relatively short head with different forms, corresponding to the spheroidal, platycephalic and cuneiform (sphenoidal for the most part), with large facies having a tendency to flatness, all Asiatic forms and such as gave origin to the Lapponoid theory of De Quatrefages and others. We cannot affirm absolutely that this new ethnical element was of Lapp origin, for we have no evidence to prove it. But we may affirm another fact to the contrary and which is of more importance, namely, that

they have the same osseous features as the people who came into Europe with the age of bronze, and who to-day constitute the brachycephalic populations of central and western Europe, and of the groups which penetrated to the south and the north, the Aryans, that is, who in recent times bore the names of Celts, and Germans, and Slavs, as I have elsewhere shown.[1]

The Aryans must have been numerous and violent invaders, for they drove out of some regions the primitive inhabitants of the Eurafrican species, changed many of their customs, destroying almost completely or obscuring the Neolithic civilisation. I call attention to the funeral rites only, which is always an important manifestation among peoples, and we know that the Aryans practised cremation, which was substituted for the inhumation of the Neolithic age. If therefore we consider these facts in succession, the physical characteristics of the newcomers in Europe, first peacefully and then violently, we think we may affirm that the new ethnical elements of the Neolithic age were the advance guard of the later Asiatic invasion which was made by that stock which was in consequence called Indo-European and which was believed to be the bearer of civilisation. We consider this new stock, which was Asiatic in origin, and which we have elsewhere stated to belong to the Eurasican species, as that which has given to Europe its second inhabitants, the first being the Eurafrican, which followed the Neanderthal which left few remains.

But I do not wish to close this article without referring to the fact that Pritchard observed in the Celtic cranium of Great Britain, which is identical with that of other regions, the Mongol or the Turanian characters; that Nicolucci described in the Piedmont cranium, foolishly believed by him to be Ligurian, an error which is to-day repeated by the French anthropologists, the same Mongol or Turanian features, and that I myself in studying the skulls of Piedmont recognised these features many years ago.[2]

Finally, there is Hervé who recognised the mongoloids in

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[1] *Arii e Italici, cit.*

[2] *Liguri e Celti nella Valle del Po.* Florence, 1883.

France,[1] which he obstinately denominates Celto-Ligurians, while the Ligurians whom we Italians have in our country are Mediterranean Eurafrican, as the remains of Riviera, Genoa, and of Mentone evidently show.

GIUSEPPE SERGI.

ROME, ITALY.

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[1] *Les mongoloides en France. Revue mensuelle d'Anthropologie*, July 15, 1898.

THE IRONY OF JESUS.

IT is quite possible that because the world has wished to think of Christ only in a single aspect, a great deal of the real character and manner of his teaching may have been obscured. We expect to find in his sayings one persistent mode of thought unfolded in one persistent way. That he should be anything else than a prophet opening up the future, or that he should ever fix his eye on anything except goals and the last destinies of men, we never permit ourselves for a moment to believe. And yet it would be strange if even supposing a great teacher had one solitary doctrine to unfold he would choose only one solitary way of expressing it. We know, for instance, that Socrates sometimes dropped his irony, and spoke full in the face. And it may still be possible to discover that Jesus did the reverse, or at least it may be possible to discover among the fragmentary utterances that have come down to us and that we have good reasons for supposing to be as genuine as, for instance, the fragments of the early Greek philosophers, some indication that he passed not only moral but also intellectual judgments on men and things.

There is no more striking example of the immense influence of art upon the world than is to be found in the effect which the traditional portrait of Jesus has had on mankind. Perhaps with the exception of Tintoretto who has invariably given a perturbed and almost dissatisfied expression to Christ, and of Bazzi who makes him almost Herculean, the other great painters have reproduced a type quite feminine in its delicacy, with eye-lids drooping as if to cover tears. And ever since, the world has not wished to see him

virile. It is this traditional portrait—it might almost be taken for a figure of penitence—which rises up before us at the mention of his name, and that dominates nearly all the literature which has grown round the New Testament.

It is true that the indignation of Christ has received some attention in the pulpit, but its importance in helping us to discover his own psychology has been altogether overlooked. Although there remains enough of his vehemence to let us see how intense it must have been, he still remains in popular imagination the supreme type of self-effacement, a figure almost vanishing before the storm.

Now it might almost be taken for granted that one who has had so overwhelming an influence on the world's fortunes must have been at least as aggressive in his manner as, let us say, Savonarola. For all we know to the contrary, some of his Parables may have been satires on contemporary fashions and follies. And a closer examination of his sayings helps us to discover that he had more than one thing to say and that he said it in more than one way. What is really important to find out, however, is, did Jesus look at men from an intellectual as well as from a moral standpoint? We think he did, and that his irony is as persistent as the irony of Socrates. The sense of irony is something subtler than the pleasure which consists in turning a thought off its hinges or in stating a thing to be for a moment the opposite of what it is. It consists rather in a perpetual detection of the contradictions and surprises of life. Of this Christ is full. Even his fugitive utterances contain a certain pungency which has been lost upon us. It is easy, for instance, to point out the satire of that amusing passage where he describes a man in bed with his children and unable to sleep because of the loud knocking by some hungry person at his door.—"I say unto you though he will not rise and give him because he is his friend, yet because of his importunity he will rise and give him as many as he needeth!" This, which must have been said with a shrewd glance and a smile, is delivered from the pulpit in a perfectly solemn manner. But it is merely the belief that Jesus must always have been serious that prevents our seeing

his real manner in such a passage and in that other so nearly akin to it about the unjust judge. What but an ironical hand draws the picture of a judge bored to death by the loud talk of some obstinate widow?—"Though I fear not God nor regard man, yet because this widow troubleth me I will avenge her lest by her continual coming she weary me!" In the whole history of opinion there can be found nothing so remarkable as the fact that for generations the religious world has kept itself blind to the true nature of such passages solely because it never expected to find Jesus laughing in his sleeve. If he meant anything by these incidents he meant that generosity and justice, two things which we might expect to be in safer keeping, arrive often by way of accident, and that surprising concessions may be wrung from the world by those who are skilful enough as to ways and means. But all this which is really vivid psychological comment for its own sake has been turned solemn for us, and used for our redemption. His humor lies hidden in the theology which oppresses his name, and is lost to us like his gesture. So true is his own bitter remark that men have eyes and ears to little purpose.

Instances might be multiplied to show how sustained is his pleasure in the ironical side of things, as, for example, his picture of one blind person going forward to assist another with the result that both are presently in the ditch. He is aware of all disillusions, and half his judgments appear to be founded on a sort of naïve disinterested analysis. But it is also true that he feels a personal annoyance on account of the irresponsiveness of the world. Like Heraclitus he turns with irritation from the displays of ordinary intelligence. He openly rates his disciples for their dulness.—"Are ye also yet without understanding?" (Matt. xv. 16.) And certainly it was not as a saviour that he rejoiced in the fact that he could speak so darkly as to mislead all torpid hearers.—"Therefore speak I to them in Parables, because they seeing see not, and hearing they hear not, neither do they understand." He quotes with approval the saying of a prophet that "this people's heart is waxed gross, and their ears are dull of hearing, and their eyes they have closed; lest at any time they should see with their eyes and

understand with their hearts, and should be converted and I should heal them." Christian Socialism! Jesus has a very variable opinion about the mob. His ethics are as aristocratic in their tone as the ethics of Plato. If the intellectual and moral stuff with which a man starts happens to be poor in quality so much the worse for the man. The one fact remains that grapes are not found on thorns, or figs on thistles. Jesus comes to the world not by any means to interfere with causes and effects, but to acquiesce in the intimacy of their relation. He approves of the dividing line which he finds running through mankind. In his own pecular phrase men are either sheep or goats. He perceives the irony of existence only to acquiesce in it, and give it a piquant phrase,—"For whosoever hath to him shall be given, and he shall have more abundance; but whosoever hath not from him shall be taken away even that he hath." There is not much comfort for democracy here.

The centre and core of the teaching of Jesus is summed up in the statement: "He that hath ears to hear let him hear." There appears to be no cure for spiritual deafness. In spite of all that we have heard, Jesus does very little to help a man out of his fate. "Not every one that saith unto me Lord, Lord, shall enter into the Kingdom of Heaven." Jesus knows a rogue. And, after all, here is the end of everything,—"Whosoever, therefore, shall confess me before men him will I confess before my Father which is in Heaven. But whosoever shall deny me before men him also will I deny before my Father which is in Heaven." That is to say, it is to be score for score, or the Kingdom of Heaven is to be founded on the law, "An eye for an eye and a tooth for a tooth," which in another mood he abrogates and condemns.

It is too late to provoke anything so commonplace as scepticism by pointing out that the sayings of Jesus are not coherent. The truth is we should not expect a spontaneous thinker to unfold a single sustained view of the universe. At any rate, it is not our task to reconcile the twin modes of thought employed by Jesus, but rather to emphasise their difference. We do not believe that he had nothing further to talk about than what is called the Kingdom of God. He seems to have had a good deal more to talk about.

The sayings that have come down to us suggest a mind by no means assured of its landmarks. If he casts light not on the origin of the universe but on its process, that is no more than what any other thinker has done. The truth is, his method is Zoroastrian. While Anaxagoras thought that those who divide the world in two with a hatchet proceed in an unphilosophical way, Jesus never does anything else. So far as the ultimate destiny of the world is concerned, he presents to us only a doubtful outpost into the Unseen. Given the presuppositions on which it is founded, his style of thought is simplicity itself. He is a balancer of men and things, and judges them by the standard of his own excellence. Never does he let the scales pass out of his hands. There are, indeed, a few instances in which he seems to come remarkably near the conception of Necessity. Now and again, as he is driving men to what he thinks must be their supreme goal, he pauses to think that it must needs be that offences come. Even Judas is said to be not altogether able to help himself, and it is interesting to notice that the idea of Prophecy, which we ought to consider as the naïve expression of determinism, seems to have captivated the mind of Jesus. But his interests are really of a practical kind. He is not so much concerned with the fact that offences must come. He has the moralist's or rather the legalist's interest in the conclusion, "Woe unto the man by whom they come." It is, of course, significant that in one passage he admits that spiritual affairs must submit to the ordinary laws of natural growth and, we may even add, decay. He likens the Kingdom of Heaven to a grain of mustard seed. But he does not work long with this idea. The question of man's relation to the universe, a question with which every system of ethics ought to start, never troubles him. Existence as such offers him no problem. He took common life for his starting-point, but did not test its presuppositions the way Socrates did. But he must have looked very intently on what fell under his eyes. And it is only because we are in the habit of detaching his words from his surroundings that we miss the keenness of his worldly wisdom. If he had treasures of superior knowledge laid up elsewhere, he makes small use of them. In spite of now and again an

anxious glance towards the many mansions his feet are planted very firmly indeed upon the earth. When he speaks of the other world, it is in the terms of this.

There is evidence that he did not disdain the luxuries of life when they came in his way. The incident of the box of very precious ointment ought to settle this point. It must have been with a touch of bitterness that he said, "Foxes have holes, and the birds of the air have nests, but the son of man hath not where to lay his head." And we may use the stories of the miracle at Cana of Galilee and of the miracles with the loaves and fishes to this extent, that they furnish evidence that Jesus had left an impression among his contemporaries that, after all, riches need not bar the entrance to the Kingdom of God. It is good to have bread in the wilderness.

It is not easy to discover what amount of novelty there is in the teaching of Jesus. He seems to adjust himself to certain tendencies he had already found and approved and to throw in his lot with them rather than to create anew for himself. The rigor of the Pharisaic interpretation of the Law was bound to create a reaction. At any rate no system whatever, not even Christianity, starts without antecedents of some kind. Jesus himself defined his relation to the Mosaic Law. Whereas he condemned the Scribes and Pharisees in so far as they did works "to be seen of men," yet he supports their professional authority, saying, "The Scribes and Pharisees sit in Moses's seat. All therefore whatsoever they bid you observe *that* observe and do." (Matt. xxiii. 2, 3.) His attitude is often the attitude of a timid innovator. He never quite delivered himself from the narrowness of Judaism, and it was not to be expected. Relics of Mosaicism are to be found in almost everything he uttered. It was there that he derived the severer elements of his teaching. He seems to oscillate between the rigor of the Law on the one hand and the natural charities on the other. He finds no compromise between them. Rather he draws more clearly than ever the line of demarcation between the children of the Devil and of God. His parables, although even as regards their method, repeat a very old theme.

We have hardly any means of knowing the way in which his opinions developed. But it is interesting to observe that the incident of the Temptation is considered by the three Evangelists who take notice of it to have occurred early. And there should be no difficulty in accepting this as the naïve account those writers give of that period of spiritual distress through which in their youth some imaginative natures have to pass. The significance of the Temptation is this: that it contains the beginning of a style of thought which Jesus subsequently developed with great persistence. In almost all his most important utterances he seems to fall back on this early picture of the collision of the two forces of which nature is the expression, God and the Devil. It reappears, for instance, in a startling manner in the prayer in which we pray to be delivered from Evil: as if, in spite of God, the insurrectionary forces remain. And so far as Jesus was personally concerned he seems to hear for ever afterwards the mutterings and reverberations of that early spiritual tempest. When he was in the thick of it he seems to have begun already to perceive the anticipative irony of the early belief that in some unique sense he was the "Beloved Son." For when, in obedience to his ambitions, he proposes fantastically to put heaven to the test and to cast himself down from a pinnacle of the Temple, he draws back suspicious, and defends his scruples in that subtle manner which only those who fail to appreciate his subtlety will misinterpret. The struggle closes, certainly, with his choice of God and his rejection of the Devil. But it is surely of the utmost significance that we are told that the Devil left him only "for a season," a phrase which, if it implies anything, implies that he did not throughout life possess that assurance that all is well with which he is generally credited. Jesus perceives all along that there is another power at work and he almost appears to struggle to explain it. In certain of his moods—but this is rare—he discovers that sin has more to say for itself than some people suppose. There is nothing finer in the history of practical ethics than his treatment of the "sinful woman." He knows very well that a "corrupt tree cannot bring forth good fruit." But we look in vain for any explicit recognition of the truth that underlies such

a saying. If he had wished to become conscious of it, more than half his teaching would have had to be given up. Jesus took no time to elaborate a system of naturalistic ethics. And yet the moralist who separates the individual from all the preceding causes that have made him what he is, and pretends to understand him and do him justice on the supposition of his autonomy, is the least instructive of teachers.

Take the parable of the sower—"Behold a sower went forth to sow. And when he sowed some seeds fell by the way-side, and the fowls came and devoured them up. Some fell upon stony places where they had not much earth, and forthwith they sprung up because they had no deepness of earth: and when the sun was up they were scorched: and because they had no root they withered away. And some fell among thorns, and the thorns sprung up and choked them. But others fell into good ground, and brought forth fruit, some an hundred-fold, some sixty-fold, some thirty-fold. Who hath ears to hear let him hear.". (Matt. xiii. 3 et seqq.)

This parable suggests problems which it makes no attempt to solve. Seeds can grow only where they are thrown down, and it is difficult to see what control the "crops" can have over the caprice of the Sower's hand. The truth that underlies the fable is that the individual appears in the universe as the result of a force beyond his reach, but Jesus is content with the fact that some of the "seeds" have the good fortune to be let fall in the right place. He congratulates all the successes, and passes his condemnation on the blighted vegetation which follows in the sower's wake. And yet, read in the light of the theory which this parable suggests, there was never a more vivid illustration of the naturalistic view of the world.

The next parable is in some ways even more instructive—"The Kingdom of Heaven is likened unto a man which sowed good seed in his field. But while men slept his enemy came and sowed tares among the wheat, and went his way. But when the blade was sprung up, and brought forth fruit, then appeared the tares also. So the servants of the householder came and said unto him: Sir, didst thou not sow good seed in thy field? From whence then hath

it tares?' He said unto them an enemy hath done this. The servants said unto him, wilt thou then that we go and gather them up? But he said Nay: lest while ye gather up the tares ye root up also the wheat with them. Let both grow together until the harvest: and in the time of harvest I will say to the reapers, gather ye together first the tares and bind them in bundles to burn them: but gather the wheat unto my barn." (Matt. xiii. 24 et seqq.)

The sower is the son of man. He is responsible for the good seed. The Devil is, one supposes, responsible for the tares since they are described as his children. But the whole question of the real responsibility of the individual for his inheritance of evil is left out of account. If the parable had been spoken by any one except Jesus, who would have been satisfied with it? The modern doctrine of predisposition to vice lies latent in it, and yet its conclusions, based as they are on the dogma of responsibility, are inconsistent with that doctrine. If you are a "tare" and if soil is provided for your roots, what can you do but grow? It is useless to reply that the individual has no right to be a "tare." His choice in the matter is never even considered by Jesus. The criminal is the expression of a power that lies beyond him, and that brought him into being. It is sufficient for Jesus that, as he says elsewhere, "every plant which my Heavenly Father hath ever planted shall be rooted up." It is enough if vengeance falls not on the source of evil but on every one unfortunate enough to be its vehicle.

"Again the Kingdom of Heaven is like unto a net that was cast into the sea, and gathered of every kind, which when it was full they drew to the shore, and sat down and gathered the good into vessels, but cast the bad away. So shall it be at the end of the world: the angels shall come forth and separate the wicked from among the just, and shall cast them into the furnace of fire: there shall be weeping and gnashing of teeth." (Matt. xiii. 47 et seqq.)

The same style of thought is repeated because it is the chief message Jesus has. Good news! Not the exegesis of Calvin, but that of his more tolerant successors, is inaccurate. Jesus knows that the "good fish" and the "bad fish" are there, and his chief interest is in the fact that in time the net will be provided. The

"fisher of men" is extremely fastidious. He once asked people if they could add a cubit to their stature. But what if the moral stature is also a fixed quantity? As we have seen, he perceives this more than once, but not its momentousness, and he goes on pointing his antitheses.

Take again the extraordinary parable of the marriage of the King's son. (Matt. xxii 2 et seqq.)[1] The rich people refused to come. The highways and hedges were then ransacked for beggars: or as Luke says, the streets and lanes of the city were searched. (Luke xiv et seqq.)[2] The outcast came, hungry enough we may suppose. But there is discovered among them an individual without a "wedding garment."

Yet supposing they were all suitably dressed, it is not expected that a beggar should wear finery. And besides the feast, according to Luke, was made for beggars just because they were beggars. We should not be surprised when we are told that the individual who was reprimanded remained speechless. Jesus clinches the story by what must have been a favorite phrase, "Many are called but few are chosen." It would be a pleasure to believe that he was satirising the theological view of the universe. Even supposing that this parable is to be interpreted in an allegorical sense, and that the "garments" are to be considered of a spiritual kind, yet the same criticism applies; because it was for the spiritually naked, those who are covered only with the "looped and windowed raggedness" of their morality that the feast of comfort was ordained. The truth is that it was not by any superior intuition but by long study of the irony of the world that Jesus was able to gather his philosophy of life into the stinging epigram,—"So the last shall be first and the first last."

It is perhaps not necessary at this stage to point out that the parables of the Ten Virgins and of the Ten Talents sustain the same mode of thought. The parable of the Ten Virgins, indeed, is singularly piquant. As if, when the five wise persons proposed

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[1] Doubtless the equivalent in Luke is the parable of the Great Supper.

[2] There is some variation in the account. Luke does not give the full parable.

that the five foolish should go to buy oil for themselves, their wise heads did not know that it was already too late. It is enough for Jesus if, amid general mediocrity, a few are found with sharp enough wits. It is hard to see how the answer of the five wise is compatible with that self-denial to the uttermost which Christianity is supposed to involve. And the parable of the Ten Talents is further proof that a single consciousness may combine strong powers of compassion with the most remorseless rigor. It is really to the world's credit that it prefers to remember Jesus in the moods of his tenderness, and to accept the parables of the Lost Sheep and of the Prodigal Son as typical. It is in them that he appeals almost overwhelmingly to our emotions. But they are not more typical than the others, and exactly one-half of the teaching of Jesus may be massed up in opposition to the other half.

The parable of the Ten Talents as given by Luke is preceded by the cheering news that Jesus came to seek and to save that which was lost. But an inspection of the parable compels us to accept that statement in the most limited sense. The parable is this:—"For the Kingdom of Heaven is as a man travelling into a far country who called his own servants and delivered unto them his goods. And unto one he gave five talents, to another two, and to another one: to every man *according to his several ability;*[1] and straightway took his journey. Then he that had received the five talents went and traded with the same, and made them other five talents. And likewise he that had received two he also gained other two. But he that had received one went and digged in the earth, and hid his lord's money. After a long time the lord of those servants cometh and reckoneth with them. And so he that had received five talents came and brought other five talents, saying, 'Lord, thou deliveredst unto me five talents: behold, I have gained beside them five talents more.' His Lord said unto him, 'well done, thou good and faithful servant; thou hast been faithful over a few things, I will make thee ruler over many things; enter thou into the joy of thy Lord,'—and so with the next until the third. Then

[1] The italics are not in the original.

he which had received the one talent came and said: 'Lord I knew thee that thou art an hard man reaping where thou hast not sown, and gathering where thou hast not strawed. And I was afraid and went and hid thy talent in the earth: lo, there thou hast that is thine.' His lord answered and said unto him, 'thou wicked and slothful servant thou knewest that I reap where I sowed not and gather where I have not strawed. Thou oughtest therefore to have put my money to the exchangers and then at my coming I should have received my own with usury. Take therefore the talent from him and give it unto him which hath ten talents. For unto every one that hath shall be given and he shall have abundance, but from him that hath not shall be taken away even that which he hath. And cast ye the unprofitable servant into outer darkness: there shall be weeping and gnashing of teeth.'" (Matt. xxv. 14 et seqq.)

Now the most striking statement in this parable is that these presents were given to the recipients, "every man according to his ability." There is a scale of abilities among individuals varying from the highest to the lowest. The interval between the highest and the lowest may be as wide as possible, but the truth is recognised that as you proceed down the scale it is in a diminishing ratio until zero is reached. This is as true now as when Jesus uttered it. But the rest of the parable is inconsistent with such a purely scientific view of the intellectual and moral qualities of mankind. The "failure" in this case was a man whose abilities were for all practical purposes at zero. Whether or not he was correct in his estimate of his lord—and from his subsequent treatment it almost looks as if he had been correct—the work given him to do was *not* "according to *his* ability." It is his employer who has gone wrong. The man is a pathological case, whereas Jesus had already recognised the necessity of laying even moral burdens only on backs that can bear them. But the parable does not close in the way in which its opening leads us to hope. We expect the theory of punishment to be stated in the regenerative form. But it is stated in the vindicative form. Your bad lot are simply to be destroyed like vermin. If the individual is not born in a high enough scale of be-

ing, it is his own lookout. So that for Jesus, as for Peter, the limits of forgiveness seem, after all, to be very definite indeed.

In short, he tells us in various ways that "virtue is knowledge," though he does not accept the consequences that result from such a theory. Reality for Jesus means the repetition of two different types. He did not trouble to put what, from some points of view, may be admitted to be the irrational question, Is Nature just? He is satisfied with the ironical see-saw of destiny—

"Woe unto you that are full, for ye shall hunger!"

"Woe unto you that laugh, for ye shall weep!"

He has made long study of the wheel of fortune. "I tell you that in that night there shall be two in one bed; the one shall be taken and the other shall be left. Two women shall be grinding together; the one shall be taken and the other left. Two men shall be in the field; the one shall be taken and the other left. And they answered and said unto him, where Lord? And he said unto them, wheresoever the body is thither shall the eagles be gathered together." It is to be a perpetual decimation. Jesus fixes his eye on the unalterable destinies of the world, and never lifts a finger to stay them. He does nothing to change the existing order. He only interprets it.

It is surprising that the world is so familiar with the idea that he was a "Saviour." Really, he is a piquant moral analyst. But the criticism which encumbers the New Testament hides the real truth from us, and creates a fictitious personage. We have indicated, however, only in a very rough manner what deserves a complete and laborious analysis. We have not used all the material that is at disposal for our purpose. And yet the Sermon on the Mount with its strange combination of Hedonism, universal charity and sectarian bitterness, is as valuable for our specific aim as the parables that have been cited. For it might be shown that, starting from a disguised sort of Hedonism,[1] Jesus goes on to develop by contradiction his twin modes of thought, giving with one hand what he takes away with another. The Sermon on the Mount, it

[1] "Great is your reward in Heaven."

is true, has a softer tone than almost anything else, so far as we know, that he ever said. But it, too, is full of surprises. Jesus soon falls back on the point of view from which life appears to be a dreary contract between God and man. "For if ye forgive men their trespasses your heavenly Father will also forgive you; but if ye forgive not men their trespasses neither will your Father forgive your trespasses." And it is noticeable that he is made to finish this sermon in a way that became characteristic. For he there paints in a vivid manner the picture of the foolish person carried off in the rains and floods which sooner or later carry off all foolish persons.

If any one chance to be offended by the point of view indicated here, he must go to the sayings of Jesus in order to discover whether or not they bear the interpretation that has been put upon them. It is, happily, not a question of origins about which the most capable scholars may fall out. It is simply a question of the inner coherence of the received record of what Jesus said. If he is to be intelligible at all his words must mean just what they would mean if spoken by any other historical personage. Erasmus said long ago that Jesus is growing obsolete. But it is because the criticism which surrounds him is obsolete and has no vitality. And yet there ought to be no question that any progressive movement of thought involves the discovery and the disappearance of all irrelevances; i. e., simply it involves the correction of the excesses of primitive beliefs. The world seems never to know what to do with its great characters at their first appearance, and invariably throws out a hypothesis about them which it may take centuries to verify. The judgment of the world, indeed, moves very cautiously from the problematic to the assertoric stage, but it moves at last. It is too seldom seen that the rate of progress depends on the amount of superfluous matter which lies about the hypothesis. In the case of Jesus it has been remarkably slow for reasons that we cannot enter into here. But the history of every science is the history of the slow accumulation of error, and then of the slower elimination of it. And the task laid on every age is to set limits to the unlimited exaggerations of its predecessors until what was a misleading problematic judgment begins at length to assume the form of a judgment of valuation.

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ACTUAL EXPERIENCE.

THE human mind in general has with inborn urgency been so completely adapted to, and consequently engrossed with, the satisfaction of the pressing needs of existence, that it has habitually overlooked the most patent truths regarding the nature of what is experienced by its conscious states. Only with great effort, and under suitable conditions, does it succeed in gradually liberating itself from the entanglements of the vital exigencies, so as to be able to assume the free contemplative mood.

Thus ever since man began to ponder the mystery of being and becoming it has taken a vast amount of thinking by the best philosophical heads to render certain a proposition which to us now appears well-nigh self-evident, namely, that nothing is directly experienced by us, save modes of our own consciousness. How, indeed, could it be otherwise? For, undeniably, it is only when conscious, and in modes of such consciousness, that we experience whatever at any time we become aware of. The entire awareness of our own being, and of the world at large, consists, then, when closely examined, solely of conscious states, such as sensations, perceptions, emotions, thoughts, and volitions. It is out of these directly experienced states of consciousness that each of us construes the world he knows.

Strange as this irrefragable conclusion regarding the sole material of experience may seem to unreflecting minds, the actual fact of such experience must seem stranger still. For it is, evidently, only within the one ever-dwindling moment of time we call "the present" that all which goes to form our conscious content has ex-

istence. From instant to instant our conscious states are carried away with the flow of ever-lapsing time. What we are conscious of at the present moment becomes in the next, part and parcel of the irretrievable past. To become consciously present again it has to be what is figuratively called "re-collected," which means that it has newly to arise as conscious from unconscious depths.

On the strength of these readily tested considerations it may be accepted as a philosophically established position, that we experience all data of knowledge, all in fact we get positively to know, as a continuously dwindling and resuscitated moment of present conscious realisation. Whatever correct conception of the nature of existence or being we may be capable of forming has, therefore, of necessity, to be extracted from that which from moment to moment constitutes the conscious content. Actual experience being wholly given in the moment of present awareness, how can there possibly be access to a true knowledge of existence otherwise than through correct interpretation of what the conscious moment really contains and implies?

The so-called common-sense-view of nature, used by us all in our dealings with the sense-apparent world, has been first instinctively, and then more or less intentionally, moulded in strict subserviency to our vital needs. It feels nowise urged to question this makeshift experience regarding its real constitution and origin. Nor does scientific investigation teach us more than the exact concatenation of the things that appear in time and space. It leaves us in the dark as to the nature of what is thus interdependently moving and changing.

In our philosophical mood we desire to learn, moreover, with some degree of certitude the true meaning of it all; the meaning of that which constitutes consciousness; how it comes to build up the marvellously complex world we know; whether as a whole, or by force of any of its constituents, it is a self-subsisting, self-actuated entity, as stoutly maintained by idealism; or whether, on the contrary, it merely passively conveys the revelation of a realm of creative efficiency subsisting independently of being consciously real-

ised. All this, and much more, has to be learned by attentively questioning the moment of actual experience.

This difficult task has been performed for us in a masterly manner by Mr. Shadworth H. Hodgson in his great work, *The Metaphysic of Experience.*[1] As a result of life-long devotion to philosophical study and contemplation he has given us a methodically elaborated analysis of actual experience.

In keeping with the fundamental philosophical position, he finds present in time as material wherewith to construe the make-up of our own being, and the world we know, nothing immediately manifest, save what is actually given in the conscious content. And this is found to consist out and out of a changeful complex of multifarious, blending and vanishing, mental states. All feeling, perceiving, thinking and willing, blended inseparably with all that is felt, perceived, thought and willed, forms, as awareness, of necessity, part of the one manifest existent,—the present conscious content. Therein, and nowhere else, is displayed the all-revealing panorama of existence. To find out its meaning; to ascertain who feels, perceives, thinks, and wills, and what is thereby felt, perceived, thought, and willed; to arrive at the distinction between a me and a not me, between subject and object; inferences beyond immediate awareness have inevitably to be drawn from implications involved in the given conscious data.

The analysis of the all-containing conscious content, from which alone true knowledge can be derived, is evidently metaphysical, as well as metapsychical, for it starts from given conscious data, and presupposes as underlying them neither ὕλη, nor ψυχή, neither a physical nor a psychical substance, neither body nor mind. To hypostasise beforehand entities of any kind; to assume the pre-existence beyond conscious revelation of living beings and their faculties, and of things and their properties; is to forestall direct analysis by *a priori* postulations, abandoning therewith the genuine philosophical standpoint.

When, for instance, transcendental idealism seeks to elevate

[1] Four volumes. London and New York: Longmans, Green & Co. 1898.

what is revealed in consciousness as thinking to the rank of a self-acting principle, which it calls "reason" or "intelligence," it merely creates in imagination a fictitious entity. The same occurs when the conscious experience of willing is installed under the generalised term "will," as a prepotent agent. Or when sensations under the name of "vivid impressions" or "mind-stuff-elements" are detached from their conscious context and made to act as separate, self-existing potencies. Again when percepts, under the delusive name of "material objects," are believed to constitute the real universe.

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In the systematic analysis of experience as actually found in the moment of conscious realisation, after carefully discarding all presuppositions, Mr. Hodgson believed himself to have discovered the only true method of philosophising. If so, this method is sure to work in time a radical change in philosophic thought. For in the moment of actual experience a positive subject-matter is given for direct investigation, and philosophy would be thereby transformed from mere speculation regarding the reality and efficiency of ready-made conceptual constructions into an explanation of their make-up out of data given in the moment of actual awareness.

To test the validity of the claim to so momentous a discovery, let us briefly contrast with its purely analytical method that of the principal systems of the modern era.

When Descartes professed to start on his quest after truth with what he considered the most fundamental and self-evident proposition, he postulated with his *cogito, ergo sum* the existence of some kind of subject or bearer of this thinking. But it is certain that the existence and the characteristics of such a subject have first to become revealed within the conscious content by means of a specific complex of conscious states. "Thinking"—taken here as the general term for such conscious states—is therefore an experience prior to that of an underlying subject, which latter has in the course of time to be constructed out of material afforded by such "thinking." The Cartesian foundation, upon which attempts have been

made to erect a system of knowledge, is, consequently, no ultimate and veritable foundation.

Less tenable still is the foundation serving for the attempt to build up the fabric of real existence out of self-subsisting, permanent elements of consciousness, such as have been assumed by the Sensation-Philosophy and by the English Association-Philosophy from Locke to Hume, and from Hartley to Spencer; or in Germany by the Herbartians. Here a decisive fact is overlooked: the fact, namely, that all conscious experience accrues as a panorama of complex conscious states, arising within the fleeting moment of present awareness, and dwindling with it unremittingly into the irretrievable past. How then can such evanescent stuff, either as segregated elements, or as a whole, possess a modicum of substantiality and efficacy? It is plainly such stuff as dreams are made of.

Spinoza's postulation of an absolute, self-caused substance, from whose intuitively conceived attributes all knowledge has to be deduced, affords an extreme example of the instalment of a generalising concept as source of the conscious states, from whose revelations such concept has first to be extracted. The order of conscious revelation is here completely reversed. For it is obviously on the strength of multifarious, pre-experienced conscious data that the existence of an absolute substance comes to be asserted. In the order of awareness the conscious data are therefore necessarily prior to the concept of an absolute substance constructed out of them. The truth or reality of the conception rests on the evidence of actual conscious experience, and not, *vice versa*, the truth of conscious experience on the evidence of a pre-existing absolute substance.

As to the monads of Leibnitz, they are clearly consciousness itself, known in reality only as an attribute of organic beings, but here fancifully atomised, and multiplied as so many autonomous beings, arbitrarily hypostasised as building material of what appears to be extended and complex objects.

Kant recognised that multifold elements of sense, or, indeed, elements of whatever kind, cannot possibly combine by a power of their own so as to form perceived objects, or knowledge of any

sort. To construct nature out of such incoherent material as the given manifold of sense, he had to postulate an efficient faculty of synthesis and apperception, which he called "Reason." The subject wielding this faculty was with him, not the psychological subject commonly assumed, but an "intelligible ego" dwelling in a supernatural sphere. His followers took it upon themselves to deify, not the subject, but its all-efficient faculty, endowing it with creative omnipotence. Now, it need hardly be repeated, that what we call a "faculty," no less than what we call a "subject," is a complex conception, not actually given as such in immediate experience, but gradually constructed out of manifold conscious data, and what is implied in their existence.

In opposition to all methods of conceptual deduction, and in opposition also to all attempts to construct existence out of aggregated elements, Mr. Hodgson's method consists in analysing the conscious content as given in actual experience, discarding thereby all surmised preliminary supports, all preconceptions, all entities hypostasised in our current interpretation of nature, such as persons and things, faculties and agencies; indeed, any and all commonly assumed or fancifully devised substances and powers.

The attempt shall now be made to impart to readers interested in philosophical thought some notion of Mr. Hodgson's profound and elaborate analysis of actual experience, contained in the four large volumes recently published. In the limited space here afforded there can, of course, be given no more than the barest summary exposition of the groundwork of the philosophy expounded in this great work.

* * *

Mr. Hodgson begins by analysing with utmost circumspection what may be imagined as a single rudimentary state of consciousness; for instance, the simple conscious experience which by dint of our developed discriminating and classifying faculties we have come to distinguish as the note *C*. There is here imagined nothing present in existence but this single conscious state. Of what, then, does it consist? It is found to be, as such, the perception of a definite feeling, or so-called sensation; a feeling which endures for a

certain portion of what we eventually come to call Time. The perceiving and that which is perceived, together with its duration, are obviously inseparable constituents of one and the same occurrence. In this unitary, indiscerptible occurrence the perceiving contains the germ of knowing; that which is perceived, the quality or nature of what is known; and its duration constitutes it a process.

All this is, however, more clearly recognised, and, in fact, actually experienced as present awareness, when we imagine the note *C* to be followed by the note *D*. This complicates the rudimentary consciousness by a new constituent, arising to form part of the same moment of actual experience. It becomes evident, then, that the moment of present consciousness is, in fact, a complex process, in which a beginning and an end, and much more, are involved. For, as the consciousness of the note *D* arises and endures, that of the note *C* gradually recedes within the moment of duration, leaving behind the consciousness of having been experienced prior to the note *D*, and changing its character of vivid immediacy to one of being less and less vividly retained, until it entirely vanishes out of the present moment of awareness.

Now as the moment of conscious realisation, called the present, contains within its duration a continuous movement, bringing with it a continuous train of content, in which every instant as it recedes into the past is re-collected and therewith apprehended by the instant succeeding it, it follows that the content of the past instant thus retained becomes thereby the perceived and known object of the instant foremost in consciousness. To this process of cumulative retention and apprehension Mr. Hodgson has given the name of "reflexion." Every state of consciousness necessarily bears this character of reflexion, for no sooner does it consciously arise than it begins already to recede into the past, being retained as merely reflected by that which succeeds.

This reflexion of a preceding content by what succeeds it within one and the same moment of conscious realisation is with Mr. Hodgson to be regarded "one of the cardinal facts of experience, upon our insight into which the whole complex of our philosophy depends." For the reflexion of a fading experience contains the

germ of what eventually appears as developed memory; and it contains the germ also of what is eventually distinguished in experience from immediate presentation as its subsequent representation. Retention is rudimentary memory, and that which is thereby retained is rudimentary re-presentation of what before was experienced as actual presentation. The apparent gulf between presentation and re-presentation, between a vivid actual perception, and its faint reproduction as re-collected at some future time, is consistently bridged by both kinds of awareness being recognised as forming already part of the most rudimentary process of conscious realisation.

To render more obvious the continuous flow of duration, and therewith of all time within the moment of present awareness, let another sound *P* be heard simultaneously with the entire sequence composed of *C* and *D*. *P* overlaps thus the end of *C* and the beginning of *D* in the same moment of duration. This involves the perception of continuous change as an immediate experience, and therewith the awareness that duration within the conscious content is, in fact, a continuous process, a ceaseless flowing out of the present into the past.

In this immediate experience a complex stream of consciousness is perceived constituting duration. Duration, and the flowing content of feeling composing it, are manifestly inseparable constituents of the time-stream, which unremittingly floods waking consciousness with newly arising experience. Or, more correctly, the continuous flow of the panorama of actual experience which forms the conscious content is also the time-stream. There is in reality no such entity as empty time. Actual time is always composed of a train of feelings, and a true conception of time can be formed only from experience directly given in the moment of actual awareness. This moment of conscious realisation constitutes duration by force of its retention as present experience of the continuously lapsing and continuously represented conscious states of which it is composed.

That which through such experience comes to be realised as what may be figuratively called the time-stream, can to some extent

be likened to a vortex, whose present form is composed of material in perpetual flux, new material being continuously incorporated, while old material is being as continuously eliminated. The pending incorporation of new material will constitute its future content, while the eliminated material has served to embody its past existence. Fancy this ever-renewed vortex endowed with a retentive memory re-presenting to it the existence and characteristics of the material that formerly composed it, and of that which is then flowing through it, and it would strikingly resemble the moment of actual experience, exemplifying also the time-stream involved in its existence. But, even then, all-important differences would obtain. The past material of the vortex does not vanish out of perceptible existence, and its future material already pre-exists as such. On the contrary, the conscious states which compose the moment of actual awareness vanish altogether out of perceptible existence, and those that will arise to supplant them do not pre-exist, but have to emerge, newly produced, from some hidden source. Whence do they come? And where do they go?

The moment of present experience gains, as has been shown, its duration by retaining as representation what had previously accrued to it as presentation. In simplest cases of experience the representation is continuous with the presentation and qualitatively congruous with it, for it is its own immediate representation. In more complex cases, however, parts of what is being experienced may have formerly entirely lapsed from the present moment of consciousness, having come to be divided from it by an interval composed of other parts. And all such lapsed and lapsing parts, though composing a connected experience with the part immediately present, may qualitatively differ from it. In hearing a musical composition, for example, it is clear that all its preceding parts are not retained as directly continuous with the part occupying the present moment of consciousness. The re-presentation of such parts has to recur to consciousness from a distant past. Mere retention does here no longer suffice. What is called re-collection, or memory proper, comes into play. Something that has altogether passed out of present awareness is reintroduced into it as re-representation

of what had formerly been actually presented and retained as immediate representation. Yet, though in this case presentations fade away into entire forgetfulness before being again represented, such intervals of forgetfulness work no essential change in the character of their representation when it recurs to consciousness. And it is found, morever, that the order in which representations recur reproduces the order in which they were first received as presentations. The circumstance which thus assigns to representations their proper place in the time-stream, as having in this sequence been once actually experienced as presentations; this circumstance is simply the original perception of priority which accompanies the change of character every presentation undergoes as it becomes transformed into a representation while receding into the past. Whatever complex of representations may at any time recur into consciousness, the order of priority, and therewith of sequence, in the context of which they form part is thereby given; for they had originally formed a connected train of conscious states, wherein at every stage the perception of priority was involved. The order of sequence inheres, therefore, inseparably in every context of representation.

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It has been explained how the perception of a present and a past is coetaneously given in the actual experience of the simplest state of consciousness; for, as a process, it involves both, time present and time past. It remains to be shown how the perception of future time is likewise contained in the moment of actual experience.

In imagining simplest instances of actual experience, occurring in time only, there have not yet been introduced feelings of activity, such as accompany attention, desire, aversion, thought, volition, and so on. Of these activities "attention" may be taken as a typical and fundamental example. It becomes manifest to direct experience as a feeling of effort, strain, or tension. And it is experienced when in the unattended flow of conscious states some more or less startling occurrence intervenes. Attentive straining after such an occurrence, as it recedes into the past, amounts to an

endeavor to keep it present in consciousness for closer inspection. Such straining after something not actually perceived present as desired, but expected to be so perceived, is, in fact, a looking forward towards something which is expected to happen in future. This involves, as immediate conscious experience, the forecast of future time. Attention converts thus mere reflective perception into expectant perception. It does this by consciously aiming to retain a receding and fading occurrence, so as to render it more distinct for future inspection. And this aim can find satisfaction only in the reinstalment into future vivid perception of the now fading occurrence.

The awareness of futurity involved in attentive perception becomes more strikingly evident when the content aimed to be inspected by attention has to be drawn from memory; has, in fact, to reappear in consciousness at a time remotely future to its past appearance as vivid experience.

As a conscious state, attention brings with it no direct perception of what constitutes its activity. Nor does it reveal from what agency such activity proceeds. It merely evidences that activity is set up somehow, though not by its own exertion. There is, in fact, no energy, nor agency; no active subject of any kind, inherent in the conscious content, as such. The recognition of this truth is of paramount importance to a correct interpretation of existence in general.

Attention, which is essentially a mode of perception, may, like all modes of perception, be connected with any kind of content. When connected with one that is pleasurable it becomes imbued with fondness for it. A painful feeling fills it with aversion, and so on.

The moment of experience being itself a continuous process is therewith, throughout, evidence of continuous activity. Modes of such activity become eventually known, as perceiving, retaining, reasoning, and choosing between alternatives, and, most saliently, as what is known as voluntary movement. Where is the subject, exercising all the activities, to be found? Certainly not in anything constituting the conscious content.

Attention to a perceptual content when it is not merely a desire for more distinct perception, but becomes, moreover, freighted with special intention or purpose, such attention is then found to result in perception of likeness and unlikeness among conscious states, leading to their classification. The attended conscious state intentionally singled out from its context, and questioned by attention as to its distinguishing quality, becomes thereby converted into what is called a "concept." It is now, not merely perceived, but, moreover, conceived and retained as a special experience, detached from the perceptual context in which it happened to occur. Such conscious states, abstracted from their perceptual contexts and retained as specialised facts of experience, tend to assimilate as congruous with themselves, and, consequently, as to be classified with themselves, whatever subsequent states may arise bearing a likeness to them. And it is not difficult to see that this assimilation brought about by purposive attention, whereby percepts are converted into concepts, and similar percepts appearing at any subsequent time being subsumed under the original concept; it is not difficult to see, that this process of conceptual classification is, in fact, "the root and source of all logical judgment, thought, and reasoning."

Facts of perception, questioned by purposive attention regarding their special nature, are thereby converted into concepts, i. e., into facts intentionally singled out from their context, in order to be retained as distinguished from it, and for future similar facts to be identified with them. The process of knowledge begins and ends thus in perception. Conception is merely an intervening stage; merely a means, whereby the multifarious, variegated conscious states, confusedly arising, and recurring, become classified and generalised in accordance with the similarities of their special perceptual nature.

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The analysis of the feelings brought hitherto under consideration has disclosed that their existence involves with their perception also that of time, present, past, and future. There are, however, other feelings which, besides being experienced as constitut-

ing time, are experienced as, moreover, constituting space. They occupy room as well as duration. They are spatially as well as durationally extended. Such extended feelings are those of sight and touch, perceived respectively as visual and tactual expanse, as extension seen and felt. When visual feelings are present it is colored extension that is perceived. Tactual feelings, on the other hand, are experienced as resistant extension. Here the feeling is not only, like all other feelings, inseparable from its duration. It is also inseparable from its extension.

Visual perception consists in the awareness of a continuous, unlimited expanse filled with variegated feeling. Tactual perception, on the other hand, consists in the awareness of limited, discontinuous expanse filled with feelings of resistance. The perception of expanse is thus realised by means of two different kinds of feeling. It is evident that, if these two different modes of feeling happened to occur always at different times, the expanse of the one would not be perceived as being the same as the other. Space visually perceived would not be realised as the same space which is tactually perceived. The identity of the spatial extension perceived by means of these different feelings is realised by their simultaneous occurrence. The space seen, and the space touched, occupy then the same moment of duration, and are thus perceived to be one and the same space.

This perceptual coalescence of visual and tactual space within the same moment of duration is the first step towards the construction of the notion of a single space, and of so-called matter occupying it.

As all feelings have duration, or, generally expressed, fill a portion of the time-stream, they are perceived as if contained in time as their common receptacle. And as all visual and tactual feelings are, moreover, extended, or, generally expressed, fill a portion of unlimited space, they are perceived as if contained in space as their common receptacle. Time and space may, therefore, with some propriety be called forms of perception in general. And the feelings that fill these forms may be designated as the matter of perception. This, however, is a mere notional separation of what

in consciousness is absolutely inseparable. No feeling whatever is separable from its time-extension. And no less are visual and tactual feelings inseparable from their space-extension.

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At times certain portions of the visual expanse are perceived to detach themselves from their context by shifting from one position in space to another. This startling occurrence is eminently fit to arouse attention. And through the influence of such aroused attention the shifting forms are singled out as special objects, now and henceforth distinguished as separable from their surroundings. When such separable visual forms are then simultaneously felt as resistant by tactual feelings they come to be perceived as what are called "material bodies." The visual forms being then perceived as shifting between a foreground and a background of variegated expanse, and their tridimensional occupation of space being simultaneously realised by means of tactual feelings, this complex experience results in the conscious construction of solid bodies moving in an expanse, whose parts are in every direction external to one another.

Portions of the visual expanse which yield no tactual feelings of resistance are distinguished from portions which yield resistance as space empty of material bodies. This so-called empty space does, however, nowise cease to be filled with visual feelings, though no simultaneous tactual feelings are found to correspond to them. Perceptual space, whether filled or not filled with so-called material bodies, is always constituted by visual feelings. The variegated color of the visual expanse occupied by bodies is only a modification of its general luminosity, which is its fundamental feeling and coextensive with it.

Here it is important incidentally to remark that our own body, no less than all other bodies, occupies, when perceived, a portion of the unlimited visual expanse. Such expanse, as a whole, can therefore not rightly be said to be external to it. It is true, we refer in perceptual consciousness all externality to our own self, as its focus. But what we perceive as our body, though it occupies the centre of the visual expanse, is, nevertheless, only a portion of

it; a portion of perceptual space, all parts of which are equally external to one another. As perceptually known, our body, like all other bodies, forms part of the conscious content, and is like them composed of visual and tactual feelings. It is, in fact, only a percept among percepts, realised as what is commonly called a material body, which means a movable form visually and tactually perceived.

In all this complex experience, as actually given in consciousness, or rather as conscious, there is no direct awareness of the means by which the conscious states composing it are brought into existence. They evidently emanate from a source not manifest in actual experience, not perceptually revealed. The visual expanse is not directly perceived as dependent on organs of sight. Nor is tactual resistance directly perceived as dependent on muscular pressure and on some subject exerting it. It is clear, moreover, that any subsequent knowledge concerning organs of sight and touch has, in the same way as all knowledge of so-called material bodies, to be built up out of those very same visual and tactual feelings which are usually held to proceed from them. And when these organs are thus constructed they are after all only a complex of conscious states, only a percept among percepts. As such they cannot possibly give origin to the visual and tactual feelings out of which they are themselves composed. It is certain, then, that what is perceived as bodily organs is not the source of emanation of any feeling, much less the source of emanation of the entire conscious content. Constituents of the moment of awareness can in no way be mutually the source of one another. They conjointly arise into presence and conjointly vanish into the past. When, nevertheless, manifold reiterated experience is found to lead eventually to the inference that the conscious content is dependent for its origin on what is revealed in perceptual consciousness as a living organism; this can only mean that the hidden source of emanation, whence the perception of an organism arises, is also the source of the entire conscious content.

It remains to be shown how this knowledge is positively conveyed through facts of actual experience.

A body perceived by sight, and not actually touched, is, as it were, offered beforehand to touch as a possible object for its own experience. And, *vice versa*, a body perceived by touch, and not actually seen, is, as it were, offered beforehand to sight as a possible object for its own experience. The term "object" in this sense signifies something which is not included in immediate perception, but only suggested as possible experience for future immediate perception. Something is here relied upon as existing beyond actual awareness. This experience of a present perception conveying in inferred anticipation the thought of a certain other as yet absent perception, which at a future time may be realised as object by actual feeling; this experience is the foundation of the important distinction between objective thoughts and objects thought of by them.

It will be shown how in actual experience this distinction becomes developed into the awareness of a self and a not-self; the awareness of an embodied consciousness perceiving other bodies as its object.

How, then, does it happen that one special body, occupying with many other bodies the visual expanse, comes to be regarded as the bearer of all consciousness? How do we come to think of our consciousness as being contained in what we call our body, while the body we actually perceive, far from being the bearer of consciousness, forms in reality part of it; is, as such, in truth, wholly made of the same stuff as consciousness itself; is, in fact, whenever it consciously appears, of necessity a constituent of it?

Together with the objects constructed by visual and tactual experience, there occur other modes of sense-perception, such as consist of sensations of taste, smell, sound, pain, and so on. Certain of these perceptions, experienced as occurring simultaneously and in frequent repetition with the perception of so-called bodies, come by association to be attached to them. They, in fact, perceptually coalesce with them; the sweet taste, for instance, with what is perceived as sugar; and, in the same way, the sweet smell with the rose, the sweet notes with the bird, heat and cold sensations with the air, pain-sensations with the tooth, and so on. These

additional feelings form part of one and the same conscious content with those other feelings that constitute the so-called bodies. They are all alike sense-perceptions, and though they form together compound perceptions, it is clear that they cannot possibly emanate from one another, all appearance to the contrary; the notes not from the perceptual bird; the pain not from the perceptual tooth.

Now by the same unifying process all feelings that constitute time come to be associated, come, in fact, to coalesce with the ever present central body of the visual expanse. In consequence of it this body is perceived as if it were the bearer of all that makes up the conscious content; though, in truth, it is only a percept among percepts. Such affiction of the stream of evanescent feelings to what appears most permanent in the conscious content, such attribution of a local habitation to consciousness, forms an important step in its individuation, and therewith in the recognition of a percipient subject being its real bearer. All other objects may disappear from the field of vision, and their real presence be then sought for in vain by representative expectation, but the central object never fails to be found present. It alone of all bodies can be at all times perceived along with every mode of representation, and along with all feelings that occupy time only. It steadfastly abides as the one visible object accompanying all modes of invisible feeling, and comes thereby to be perceived as their permanent bearer. From its central station in the visual expanse all other objects are viewed, and the inspection of the entire field of vision seems to proceed from it.

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Though philosophy teaches, irrefutably, that the conscious content contains all actual experience, that we can be directly aware of nothing but conscious states, yet so-called common-sense, informed by actual experience itself, acts unhesitatingly upon the conviction that consciousness and the objects perceived by it are separate modes of existence belonging to different orders of being; the one immaterial, the other material; the one perceiving objects, the other objects perceived; the one a knowing, the other a known.

The distinction which underlies this common-sense interpretation of the conscious content is regarded by Mr. Hodgson as of paramount importance. To actual experience the conscious content manifests two inseparable though singularly contrasted aspects. As a *knowing* it comprises within its moment of actual awareness an ever-widening sphere of knowledge reaching toward the infinite content of infinite space and eternal time. Yet as an *existent* it is conditioned on a special subject which occupies only an infinitesimal portion of that infinite space, and a mere moment of that eternal time; this subject being perceived as one among numberless other objects included in the comprehensive sweep of actual awareness. Mr. Hodgson believes that in this cardinal distinction to be made between the conscious content as an unlimited knowing, and the same conscious content as a special existent; that in this trenchant distinction is to be found the link which connects the finite with the infinite.

As to the paradoxical common-sense view of the "things known" existing outside of all-containing consciousness, and all-containing consciousness existing itself inside one of these things; as to this central puzzle of perception its explanation is likewise to be sought in facts of actual experience. When special attention is directed towards the relation of perceptual bodies to one another, and not merely to their perceptual constitution, it is found that they follow in the time-stream a course peculiar to themselves, and only occasionally coinciding with that taken by their representation as recollected in consciousness. The object represented in thought is often found unrealisable as sense-perception. The thought of an object does by no means involve the infallible presence of the object thought of. A body perceived at one moment at a certain place may not be found there at another time, though retained in representative thought as present at that particular place among the other objects forming the context of the visual expanse. These may all be present as represented in thought, but the special object thought of may fail to make its appearance in actual presentation. It has, consequently, by some means not dependent upon consciousness severed its former connexion with the visual con-

text, and pursued a course independent of that of the conscious content.

Though consisting in actual experience of nothing but visual and tactual feelings these perceptual bodies are perceived to behave in many unexpected ways. They quite unaccountably appear, vanish and change, informed thereto by an order of actuation abruptly intruding into that which is otherwise followed by the content of consciousness. Pursuing thus a course independent of the stream of representative thought they come to appear completely severed from the consciousness representing them. This estrangement is so profound that it requires a long course of tentative experience so to conform the representative stream that it will faithfully represent the course actually taken by the objects represented. Nor is it found easy to avoid attributing to the objects thought of what is merely a prejudice of the thought representing them.

The laborious methods of science attest the difficulty of harmonising the thought of the objective order with the objects thought of. And, on the other hand, universal fetishism and animism among primitive races prove how readily feelings are attributed to insentient objects seen and felt.

The common-sense interpretation of actual experience occurs in consequence of the enforced severance of perceptual bodies from the rest of the conscious content, as belonging to a different and independent order of existence. These bodies, actuated independently of the other constituents of consciousness, and reappearing in actual presentation in ways of their own, seem to have a separate and enduring existence not conditioned by their conscious realisation.

The awareness of the dependence of representative thought on the presentation of the object represented, as a condition of its realisation as presentation, becomes accentuated by a positive desire to realise as present what is merely represented. The gratification or disappointment of the representative desire is then keenly felt to be dependent on the presentative appearance or non-appearance of the object desired.

Now when it is remembered that all appearances within actual

awareness, inclusive of perceptual bodies, form part of the same conscious content, it becomes certain that none of these perceptual bodies can, as such, be really actuated by any power of their own. Much less can the perceptual central body of the visual expanse be itself the real subject conditioning the evanescing time-stream of consciousness. All appearances to the contrary, there can dwell no causative efficiency in the bodies perceived as forming part of the visual expanse, for these consist of nothing but vanishing visual and tactual feelings. Efficient agency can be exerted by no constituent of consciousness.

The fallacious notion of perceptual bodies, or of any other constituent of consciousness, being themselves causative agents, is at the bottom of most scientific and philosophic perplexity. All forms of pure idealism, as well as crude materialism, have their root in this deceptive notion; the one by attributing causative agency to consciousness as a whole or to some constituent of it; the other by attributing it especially to the perceptual bodies which fill the visual expanse.

Nothing forming part of the conscious content can possibly actuate the changeful panoramic display which makes up our actual experience. Whether of a volitional or of a mechanical character, all mental and all bodily activity has its operating source beyond perceptual awareness. The real actuating agent, the efficient subject of the volitional activity manifest to consciousness in perception, in attention, in directed desire or aversion, in reasoning, choosing and willing, and most strikingly in voluntary movement; this power-endowed existent subsists independently of whether it is perceived or not perceived. Nor can the agencies that work the interdependent changes seen to take place among the objects of the visual expanse be detected anywhere amidst the forceless and evanescent feelings which compose them. Actual experience, conveyed in the everfleeting moment of present awareness, necessarily has underlying its emanation, and actuating its panoramic display, a realm of real efficiency.

From his philosophic standpoint Mr. Hodgson discards the once prevalent notion of "causation"; just as modern physicists

have generally discarded it. Existents and their changes are then held to mutually conditioning one another; the conditioned changes being undergone by the existents themselves, and not being altogether newly produced effects foreign to the nature of the producing agencies. It is in this sense that Mr. Hodgson believes conscious occurrences to be conditioned upon changes taking place in the organic being. But, unlike other modes of existence, consciousness, though itself conditioned, is not in return a conditioning agency, but a forceless awareness.

The perceptual bodies which occupy the visual expanse, besides being actuated in ways and by means not dependent on consciousness, reveal characteristics not accounted for by their composition out of visual and tactual feelings. The sense of touch, though it realises the solidity of perceptual bodies occupying tridimensional space through feelings of surface-resistance, it leaves that which fills the space enclosed by the resistant surfaces unperceived either by visual or by tactual perception, and therefore nowise constituted by visual or tactual feelings. Here something foreign to the feelings that compose perceptual bodies prevents tactual penetration. The presence of an existent not made up of conscious states imposes definite restraints upon the feelings of sight and touch. The otherwise uniform luminosity of the visual expanse becomes forcibly occupied by variegated bodies of definite shape located in definite positions, and modifying tactual feelings in definite ways.

Tactual feelings are, moreover, realised as located in the central body known as the living organism. They cannot, therefore, compose the bodies touched, as these are perceived outside the organism. Nor can they compose the permanent organism itself which is perceptually revealed as containing them, and as the abiding source of their emanation.

From such data of actual experience Mr. Hodgson infers the existence of what in contradistinction to "percept-matter" he calls "physical matter." And he concludes that this physical matter possesses real efficiency and has existence independently of whether it is perceived or not perceived. In its organically vitalised state it constitutes the subject upon which consciousness as an existent

is conditioned, and which in interaction with other forms of physical matter is the real condition of the arising of the special states of consciousness. This material subject does, however, in Mr. Hodgson's opinion nowise account for consciousness as a knowing. This knowing or awareness which characterises the unique nature of consciousness he holds to be conditioned on nothing whatever. For nothing in the nature of matter accounts for it in the remotest degree.

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The subject-matter of philosophy or "metaphysic" is, as has been here demonstrated, the content of the all-containing moment of actual experience, the only mode of existence directly manifest. Its analysis has to be entered upon strictly without the previous assumption of any sort of pre-conceived notion or pre-established entity. From such analysis the assumed validity of the common-sense interpretation of nature has first to receive its verification. And it is only after philosophical analysis has made good the inference, that the conscious content and its changes are conditioned upon the existence and activity of a material subject, that it becomes the task of psychology to investigate the modes of such dependence.

On the strength of his philosophical analysis of actual experience Mr. Hodgson believes himself justified in inferring, not only the existence of a seen and known material world, but the existence also of an "unseen world" consisting of multifold modes of being which, together with the material world and conditioned upon one another, are composing an infinite universe filling infinite space and eternal time, and being, all in all, adequately known in one ceaseless moment of awareness to an omniscient Percipient.

Whatever one may think of the validity of Mr. Hodgson's inferences from actual experience, his method of philosophising seems to the present writer destined to supersede all other methods and to establish a sound basis for future philosophical investigation and interpretation.

Only a meager sketch of the essentials of the groundwork of

the *Metaphysic of Experience* could here be given. But the work itself is accessible to all in whom the reading of this necessarily unsatisfactory epitome has awakened the desire to become acquainted with the author's own minutely rendered exposition of an entire system of philosophy based with profound penetration and elaborate execution on the data given in actual experience.

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YAHVEH AND MANITOU.

RELIGION, being as much subject to the laws of mental growth as science and industry, follows in its historical evolution a definite course, and we shall therefore find analogous convictions and ceremonials involving a liability to the very same errors in all corresponding periods of history. How surprisingly close these analogies sometimes are will be seen by a comparison of the character of the ancient Yahveh, as described in the oldest records of the Old Testament, with the God-conception of the North American Indians. The data on which we base our comparison are all well-established facts; but in order to drive home the lesson which they teach and which is neither commonly known nor generally accepted, it is necessary to give a summary and concise recapitulation.[1]

There are three names for God prominently used in the Old Testament: First, אֵל, *El*,[2] or אֱלֹהִים, *Elohim*, also appearing in the form אֱלוֹהַּ, *Eloah*; secondly, צְבָאוֹת, *Zebaoth*, and thirdly, יהוה *Yahveh*. In addition, the general term "the Lord," אֲדֹנָי, *Adōnāi*,[3] is quite a common designation.

The first name, El, means God as an appellative; it is probably derived from the root אול, which means "to be strong," and signifies the powerful, the omnipotent. We may incidentally men-

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[1] The idea of this article was suggested to the author while listening to Professor Budde's lecture on Yahveh worship, and we hope that the second part of it will prove of interest to him and give an additional zest to the study of the religion and institutions of the ancient Yahveh cult.

[2] Pronounce "*ale*."

[3] The affix ־ָי (which must not be confounded with ־ִי, i. e., "my") is of doubtful significance and is commonly explained as a *pluralis majestatis*.

tion that El is used in the sense of God as a general appellative and Elohim, which is a plural form, occurs in several places in the plural sense as "gods," but the typical use of the word, which with few exceptions[1] has been established in the final redaction of the Old Testament, is "God" as a singular, whose plural form is commonly interpreted as a *pluralis majestatis*.

The second name, Zebaoth, is derived from צָבָא, to rise or come forth, commonly used in speaking of the rising of the stars, and means literally "the hosts," especially the host of the heavenly bodies, צְבָא הַשָּׁמַיִם, i. e., the stars or heavenly powers. Like Elohim the plural form Zebaoth is understood as a singular, and is commonly translated by "The Lord of hosts." Zebaoth means God as a designation, and signifies mainly the Deity of warfare, the Lord of armies, the Ruler of the heavens and the heavenly bodies, and the Sovereign King of the angelic world.

The name Zebaoth was mainly used in Ephraim, the most powerful tribe of Israel before the ascendency of Judah, and we need not hesitate to say that the name reflects the influences of the Zebaism of Israel's eastern neighbors who worshipped the Deity under the symbols of the celestial bodies, and had at an early date attained in the ancient Iran a rare and noble purity, finding their greatest prophet in Zarathustra, the founder of Mazdaism.

The word יהוה, Yahveh, is a proper name; it was the name of the God who revealed himself to Moses in the burning bush on Mt. Sinai, and he is pre-eminently the God of Judah.

When Moses in his love of liberty had slain an Egyptian slave-driver, he flew into the free desert and found refuge among the Kenites, a tribe of the Midianites, where he married Zippora, the daughter of Jethro the priest.[2] That Jethro was a priest of Yahveh

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[1] Gesenius says in his Dictionary, p. 115, that "Elohim is used as a plural in Gen. xx. 13; xxxi. 53; 2 Sam. vii. 23; Psalm lviii. 12; a practice which by later authors is avoided as polytheistic. S. Lgb. § 184, 1. It is used of any deity in Deut. xxxii. 39; Ps. xiv, 1; and especially of pagan gods in Ex. xxiii. 1; 1 Sam. xv. 7, and even of goddesses in 1 Kings xi. 5. The form אֱלֹהָה is exclusively rabbinical."

[2] Jethro is also called Reguel. See Ex. ii. 18 and Num. x. 29. In Judges i. 16 *et alias*, Moses's father-in-law is called "the Kenite."

becomes apparent from the fact that when Moses with the Israelites met his father-in-law in the desert, it was neither Moses nor Aaron but Jethro who acted as priest of the sacrifice to Yahveh. Jethro apparently exercised a strong influence on Moses, and even after the latter had become the leader of his people, Jethro continued to assist Moses, his son-in-law, with good advice, as is apparent from the detailed account in Exodus (xviii. 13–27), from which it will be sufficient to quote one verse only: "So Moses hearkened to the voice of his father-in-law, and did all that he had said" (v. 24).

Yahveh is identified with the God of Israel, but the name is revealed to the people of Israel for the first time through Moses; as we read (Ex. vi. 2–3):

"And God spake unto Moses and said unto him 'I am Yahveh; and I appeared unto Abraham, unto Isaac, and unto Jacob as a mighty God (אֵל שַׁדָּי), but my name Yahveh did I not make known to them.'"

The more the monotheistic conception gained ground in Israel, the more the three names of God, i. e., Yahveh, Elohim, and Zebaoth became to be regarded as appellations of one and the same Deity. The Old Testament, in the form in which it stands at present, is a combination of several books written partly by Ephraimitic, partly by Judaic, authors, and finally revised by the hand of a reconciliatory redactor. Some of the sources of the Old Testament called God Elohim, others Zebaoth, still others Yahveh; and then there are such combinations as Yahveh-Elohim, יְהוָה אֱלֹהִים, which is translated in our Bibles, "the Lord God," and Elohim-Zebaoth, אֱלֹהִים צְבָאוֹת (e. g., Psalm lxxx. 8, 15), and Yahveh-Zebaoth, יְהוָה צְבָאוֹת, in the prophets Isaiah, Jeremiah, Zachariah, and Malachia.[1] Jeremiah frequently uses the three names at once,[2] calling God with impressive solemnity Yahveh-Elohim-Zebaoth, יְהוָה אֱלֹהֵי צְבָאוֹת, which in his days may have given offence to zealous particularists, but conveys now a peculiar dignity. In the prophet's mouth the com-

[1] The term Yahveh-Elohim does not occur in the Pentateuch and Judges, and the combination Elohim-Zebaoth is rare.

[2] Jer. v. 14; xv. 16; xxxviii. 17; xliv. 7.

bination of the favorite names of God among the rival tribes of Israel into one expression was a powerful appeal to the patriotic sentiment of an undivided nation, and supported the conviction that their belief was substantially the same, that they had one God only, and that this God was the God of all mankind, as the power that makes for righteousness in the world at large.

Yahveh is not a general appellation but a proper name: it means one particular God, viz., the God who revealed himself to Moses. Yahveh possesses more individuality than Elohim and Zebaoth, and is therefore the most interesting name of God. The history of the name reflects the evolution of the God-conception from a comparatively narrow view to a cosmic comprehensiveness. It is the most concrete and the most characteristic term, and has on that account become the dearest of all names of God to the people of Israel.

The name Yahveh is at present commonly pronounced "Jehovah," which, however, is an accident of little importance; for the pronunciation "Jehovah" is of a very recent date: it cannot be found prior to the year 1520, and originated among those Protestant theologians who for the first time began to study the Old Testament in its original Hebrew. There they found the four consonants combined with the vowels of the word Adonāi, i. e., the Lord; for it is known that the pious Jews in the later days of Jewish history, which however antedates the time when the vowels were added to the original Hebrew writings, never pronounced the name Yahveh, and spoke in its place the word Adonāi, i. e., Lord. In the days of Moses, Saul, David, and when the prophets wrote, the name Yahveh was, of course, pronounced, and was frequently embodied in names in the abbreviated form "Ya." The custom originated in a wrong interpretation of the commandment "Thou shalt not take the name of the Lord thy God in vain" (Ex. xx. 7), which was later on, on account of a gradual change in the meaning of the word, interpreted to mean that the name of God should not be used at all; and since the pious Jews always substituted Adonāi in the place of Yahveh, the scribes wrote the vowels of Adonāi under יהוה, YHVH, the four consonants of Yahveh. But

no rabbi ever thought of giving it the pronunciation "Jehovah," until Christian theologians of the sixteenth century, in their first attempts at a comprehension of the original, and but still poorly versed in Hebrew philology and tradition, read the word as it stands in the texts; and since then this new and monstrous word-combination has been accepted by the Protestants, has been introduced into the Roman Catholic Church, and finally has crept even into Jewish literature.[1]

To-day the name of Jehovah is reiterated in sermons of all denominations; hymns are sung in its glorification, and devout prayers are uttered in its behalf.

In the mean time Biblical research has established the original pronunciation of the tetragram יהוה, which is now universally transcribed "Yahveh" (in German "Jahweh"), and Hebrew scholars have discovered that the word is not a Hebrew formation, but is derived from some other Semitic dialect, and that its etymological significance is "the overthrower," or "feller," "he who makes fall," which like the Greek κεραύνειος, "Thunderer," is intended as a characteristic epithet of the God of Lightning.

This God Yahveh was the local deity of Mount Sinai. Mount Sinai (or Horeb) is expressly and repeatedly called holy ground, the mount of God, and the mount of Yahveh (Num. x. 33, Ex. xxiv. 13, 1 Kings xix. 8). Here the decalogue was given. It is the place whence Yahveh comes (Deut. xxxiii. 2), the place from which he rises to help his people in battle; the place where he resides; and the prophet Elijah undertakes a pilgrimage thither (1 Kings xix. 9), in order to be near the God of Israel and be face to face with him.

How did it happen that the local deity of Sinai became the God of the Old Testament, destined to develop into the Lord Omnipotent, the dispenser of justice and sole ruler of the universe, the

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[1] The first vowel of אֲדֹנָי (adonāi), which is a "shva," signifying shortness of vowel, acquires on account of the aleph (א) in Adonāi a tint of the *a*-sound (being written ֲ) and is commonly transcribed as a short *a*; but under the Y (י) it is reduced to a pure "shva," or mere indication of a vowel (written ְ), which in our mode of writing is expressed by a short *e*.

God of Love and Morality? To explain this would necessitate the writing of a history of the evolution of religion, and, preferring not to enter into the details of these problems, we intend now simply to bring out a remarkable parallelism between Yahveh and Manitou, the Great Spirit, the god of the American Indians.

We shall sketch in broad outlines the character of Yahveh and of his people in the earliest times, and then show, by a comparison of the religion of the Kenites with the faith of the American Indians, how natural this phase of belief is. We, the children of a later age, oftentimes fail to appreciate the struggles which it cost our ancestors to rise from the lower stages of narrow views to the higher and truer religion of civilisation. By comprehending the sincerity of the past ages from which our own convictions have developed through a long struggle with error and superstition, we may learn to respect those brothers of ours who are still erring; and the sentiments of the children of the steppes are so much more vigorous, so much more intense and pathetic than those of civilised man that we can, in spite of our greatly advanced position, still draw inspiration from their fervid zeal and devotion. No one can study the religion of the American Indians without being impressed with the intensity of their faith, and we cannot fail to discover a striking similarity between their mode of worship and the religion of the ancient Hebrews.

A general similarity between the religion of the Indians and the faith of the ancient Israelites has struck some scholars of Indian lore, but the resemblance of Yahveh himself to the Great Spirit of the Indians is in some remarkable details much closer than could be anticipated. James Mooney in his instructive essay on "The Ghost Dance Religion,"[1] compares the civilisation of the two nations as follows:

"In the ancestors of the Hebrews, as described in the Old Testament, we have a pastoral people, living in tents, acquainted with metal working, but without letters, agriculture, or permanent habitations. They had reached about the plane of our own Navaho, but were below that of the Pueblo. Their mythologic and

[1] In the *Fourteenth Annual Report of the Bureau of Ethnology*, 1892–1893, Part II., pp. 928 ff.

religious system was closely parallel. Their chiefs were priests who assumed to govern by inspiration from God, communicated through frequent dreams and waking visions. Each of the patriarchs is the familiar confidant of God and his angels, going up to heaven in dreams and receiving direct instructions in waking visits, and regulating his family and his tribe, and ordering their religious ritual, in accord with these instructions. Jacob, alone in the desert, sleeps and dreams, and sees a ladder reaching to heaven, with angels going up and down upon it, and God himself, who tells him of the future greatness of the Jewish nation. So Wovoka, asleep on the mountain, goes up to the Indian heaven and is told by the Indian god of the coming restoration of his race. Abraham is "tempted" by God and commanded to sacrifice his son, and proceeds to carry out the supernatural injunction. So Black Coyote dreams and is commanded to sacrifice himself for the sake of his children."

"Coming down to a later period, we find the Chaldean Job declaring that God speaketh 'in a dream, in a vision of the night, when deep sleep falleth upon men; then he openeth the ears of men and sealeth their instruction.' The whole of the prophecies are given as direct communications from the other world, with the greatest particularity of detail, as, for instance, in the beginning of the book of Ezekiel, where he says that 'it came to pass in the thirtieth year, in the fourth month, in the fifth day of the month, as I was among the captives by the river of Chebar, that the heavens were opened and I saw visions of God.'

"The cloudy indistinctness which Wovoka and his followers ascribe to the Father as he appears to them in their trance visions has numerous parallels in both Testaments. At Sinai the Lord declares to Moses, 'I come unto thee in a thick cloud,' and thereafter whenever Moses went up the mountain or entered into the tabernacle to receive revelations, 'the Lord descended upon it in a cloudy pillar.' Job also tells us that 'thick clouds are a covering to him,' and Isaiah says that he 'rideth upon a swift cloud,' which reminds us of the Ghost song of the Arapaho representing the Indian redeemer as coming upon the whirlwind. Moses goes up into a mountain to receive inspiration like Wovoka of the Paiute and Bi'äñk'i of the Kiowa. As Wovoka claims to bring rain or snow at will, so Elijah declares that 'there shall not be dew nor rain these years, but according to my word,' while of the Jewish Messiah himself his wondering disciples say that even the winds and the sea obey him."

It is highly improbable that the Israelites should have invented their traditions which are so firmly established in their hearts and again and again insisted on in their written history. There is no nation in the world that would claim to be descended from a race of oppressed slaves, unless the recollection of the days of slavery were based on facts. Many details of miracles that are recorded

during the sojourn in the desert are later reflexions, and especially the legislative work attributed to Moses is an obvious anachronism, but that does not invalidate the trustworthiness of the historical background of the main events, which upon the whole tally marvelously well, not only with other statements of history, but also with the geographical conditions of the country.

The Israelites had crossed at low tide the inlet at the Gulf of Suez and were as by a miracle saved from the pursuing Egyptians by the sudden return of the floods, which is characteristic of the tides of the Red Sea. This happy escape is naturally attributed to the local deity Yahveh.

Without prying too closely into the exaggerations of the Biblical account, which represents a small horde of vagrant nomads as a great and civilised nation, we can easily understand that the escape from Egypt was only the beginning of the hardships of a life in the desert which made the people murmur against their leader. But all difficulties were overcome, partly by good luck and partly by the circumspection of Moses, who was pretty well familiar with the various resources of the desert. He led the Israelites to a place where they found water; he rendered the bitter taste of the water more palatable,[1] and taught his people to catch quails and to gather the edible manna. All desert populations are sparse, and we may fairly assume that the Amalekites, the inhabitants of the northern regions of the peninsula, were not more numerous than are the Arabian tribes that inhabit the country to-day. They met the half starving Israelites with suspicion and hostility, but were too weak to withstand them. After these adventures they came near the place farther south at the foot of Mount Sinai, where the Midianites used to pitch their tents.

The Biblical account in Exodus xviii. 5–12 reads in our authorised version as follows:

"And Jethro, Moses's father-in-law, came with his sons and his wife unto Moses into the wilderness, where he encamped at the mount of God: And he said unto

[1] Marah, the oasis of the bitter waters, is the present Ajun Musa with its twelve springs of brackish water, the unpleasant taste of which can be somewhat subdued by throwing in wood, on which the salts are partly deposited.

Moses, I thy father-in-law Jethro am come unto thee, and thy wife, and her two sons with her. And Moses went out to meet his father-in-law, and did obeisance, and kissed him; and they asked each other of their welfare; and they came into the tent. And Moses told his father-in-law all that the Lord (Yahveh) had done unto Pharaoh and to the Egyptians for Israel's sake, and all the travail that had come upon them by the way, and how the Lord (Yahveh) delivered them. And Jethro rejoiced for all the goodness which the Lord (Yahveh) had done to Israel, whom he had delivered out of the hand of the Egyptians. And Jethro said, Blessed be the Lord (Yahveh), who hath delivered you out of the hand of the Egyptians, and out of the hand of Pharaoh, who hath delivered the people from under the hand of the Egyptians. Now I know that the Lord (Yahveh) is greater than all the gods: for in the thing wherein they dealt proudly he was above them. And Jethro, Moses's father-in-law, took a burnt offering and sacrifices for God: and Aaron came and all the elders of Israel, to eat bread with Moses's father-in-law before God."

The sacrificial meal is the token of a covenant, and the deity of the covenant between the Kenites and the Israelites is Yahveh, the God of Jethro, who (as is expressly stated) on this occasion acts as priest.

Jethro glorifies in Yahveh, not as if he alone were God, for a pure monotheism was alien to the people of this age, but as "being greater than all gods,"—even the powerful deities of civilised Mizraim; for he is the God who "had brought Israel out of Egypt."

Yahveh remained to Israel the God of the Covenant, and the relation between the Israelites and the Kenites always remained one of friendship, and both nationalities regarded their alliance as insoluble and sacred. Hobal, the brother-in-law of Moses, after much persuasion, joined the Israelites on their journey, for he, having grown up in the desert, "knew how they should encamp in the wilderness, and might be to them instead of eyes." (Numbers x. 31.)

In the later history of Israel three tribes of Kenites are mentioned as living at Jabez and being descendants of "Hemath, the father of the house of Rechab."

Now, the Rechabites were a peculiar people who distinguished themselves by their devotion to Yahveh. In fact, Yahveh, through the mouth of the Prophet Jeremiah recommends them for their obedience and faithfulness, while the children of Israel hearkened

not unto him; and the religion of the Rechabites is expressed, in a reply given to Jaazaniah, in these words:

"We will drink no wine: for Jonadab the son of Rechab our father commanded us, saying, Ye shall drink no wine, neither ye, nor your sons for ever: Neither shall ye build house, nor sow seed, nor plant vineyard, nor have any: but all your days ye shall dwell in tents; that ye may live many days in the land where ye be strangers. Thus have we obeyed the voice of Jonadab the son of Rechab our father, in all that he hath charged us, to drink no wine all our days, we, our wives, our sons, nor our daughters; Nor to build houses for us to dwell in: neither have we vineyard, nor field, nor seed: But we have dwelt in tents, and have obeyed, and done according to all that Jonadab our father commanded us." Jeremiah xxxv. 6–10.

The religion of the Rechabites is apparently the original Yahveh cult, whose most obvious feature is a religious consecration of the nomad life in the steppes with an outspoken aversion to all civilisation as an aberration from the God-ordained estate of life.

The fabrication of idols is rejected. Yahveh said unto Moses (Exodus xx. 23):

"Ye shall not make with me gods of silver, neither shall ye make unto you gods of gold."

Isaiah denounces idols, because they are the work of art and a product of human skill, saying "the idols were no gods but the work of men's hands, wood and stone" (xxxvii. 19); even the altars which are built unto Yahveh must retain the primitive simplicity of uncivilised life. Yahveh says (Exodus xx. 24–25):

"An altar of earth thou shalt make unto me, and shalt sacrifice thereon thy burnt offerings, and thy peace offerings, thy sheep and thine oxen: in all places where I record my name I will come unto thee, and I will bless thee. And if thou wilt make me an altar of stone, thou shalt not build it of hewn stone: for if thou lift up thy tool upon it, thou hast polluted it."

Flint-knives were used for circumcision.[1] The fire for the sacrifice was produced in some such fashion as to suggest an origin that was not caused by the art of man but "came out from before the Lord." People not familiar with the habits of the sons of the steppes always express their unconcealed astonishment at the way

[1] Joshua v. 2.

in which the worshippers of Yahveh make fire, and the feat is regarded as a miracle by which a man proves himself a prophet of Yahveh. We read for instance:

"And there came a fire out from before the Lord, and consumed upon the altar the burnt offering and the fat: which when all the people saw, they shouted, and fell on their faces."

The art of making a fire after the old fashion of the inhabitants of the desert, which is regarded as "coming out from before the Lord," has apparently given rise to the idea that the fire of Elijah fell from heaven.[1] Similar instances of making fire in a mysterious way, are repeatedly mentioned in the books of the Old Testament.[2]

Even in the days of Gideon, the Israelites did not live in cities and houses, as did the Canaanites, but in tents,[3] and Gideon selected for his band those only who would even spurn the use of the hand as a substitute for a drinking vessel and lapped the water like dogs.

The character of Yahveh changed gradually; but his temple remained a tent until the reign of King Solomon, and when the old traditions of Israel were revised by the reconciliatory hand of their ultimate redactor,[4] who identified Elohim with Yahveh and combined the traditions of Ephraim and Judah into one, many important features of the religion of Israel which bore witness to antiquated forms of belief, were obliterated in the traditions of the people, but the records still give evidence of the evolution that has taken place from a lower to a higher conception of God.

While thus the national God of Israel was a God of the desert, the people began slowly to conquer Palestine; sometimes they extorted tribute from the inhabitants of the cities, sometimes they were forced to bow to the latters' military and police forces; but in the long run they became gradually accustomed to the sedentary habits of an agricultural country. It became almost impossible to remain

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[1] It is noteworthy that the text (1 Kings xviii. 38) does not state whence the fire came.

[2] Compare Judges vi. 21; xiii. 19–20; 1 Chr. xxi. 26; 2 Chr. vii. 1, etc.

[3] Judges vii. 8.

[4] Commonly designated *JER* in the nomenclature of the higher critics.

faithful to the precepts of life that would be pleasing to the heart of the old Yahveh of the desert, and the people were constantly but naturally hankering after the worship of Baal, the God of the Canaanite civilisation. Hence the constant reproaches of the prophets; and there appear to have been no people in the neighborhood that turned their back so readily upon their national deities. Listen, for instance, to the complaints of a prophet as late as Jeremiah:

"Moreover the word of the Lord came to me, saying, go and cry in the ears of Jerusalem, saying, Thus saith the Lord: I remember thee, the kindness of thy youth, the love of thine espousals, when thou wentest after me in the wilderness in a land that was not sown. Israel was holiness unto the Lord, and the first fruits of his increase: all that devour him shall offend; evil shall come upon them, saith the Lord. Hear ye the word of the Lord, O house of Jacob, and all the families of the house of Israel: Thus saith the Lord, What iniquity have your fathers found in me, that they are gone far from me, and have walked after vanity, and are become vain? Neither said they, Where is the Lord that brought us up out of the land of Egypt, that led us through the wilderness, through a land of deserts and of pits, through a land of drought, and of the shadow of death, through a land that no man passed through, and where no man dwelt? And I brought you into a plentiful country, to eat the fruit thereof and the goodness thereof; but when ye entered, ye defiled my land, and made mine heritage an abomination. The priests said not Where is the Lord? and they that handle the law knew me not: the pastors also transgressed against me, and the prophets prophesied by Baal, and walked after things that do not profit. Wherefore I will yet plead with you, saith the Lord, and with your children's children will I plead. For pass over the isles of Chittin, and see; and send unto Kedar, and consider diligently, and see if there be such a thing. Hath a nation changed their gods, which are yet no gods? but my people have changed their glory for that which doth not profit. Be astonished, O ye heavens, at this, and be horribly afraid, be ye very desolate, saith the Lord. For my people have committed two evils; they have forsaken me, the fountain of living waters, and hewed them out cisterns, broken cisterns, that can hold no water." Jeremiah ii. 1–13.

The very comparison of the spring that wells up naturally and the artificial cistern is suggestive. God, to the prophet, or at least in the traditional phraseology which still clings to him, is like the living fountain of an oasis, representing the immediate blessings of nature that are freely given and come without the efforts of the artificial methods of human civilisation. The fertile country of Pales-

tine which the Israelites had invaded, regarding it as their heritage, will yield more and better food than the desert, and there is no need to defile the land by the abomination of Canaanitic civilisation and idolatry.[1]

An interesting parallelism to the ancient Yahveh worship of the Israelites is found in another Semitic race of the same region, called the Nabatæans, an Arabian tribe inhabiting in ancient times the steppes in the south east of Palestine. They are mentioned in the Old Testament under the name of *Nebaioth* (Isa. lx. 7) and said to have descended from Nebajoth, the oldest son of Ishmael (Gen. xxv. 13).

Diodorus Siculus (ix. 94) tells us that the Nabatæans inhabited the mountains of Seir and that for the sake of preserving their liberty they retained a nomadic life, regarding agriculture in every form a crime and a felony. They planted no trees, no wheat, no vineyards, but grew rich as merchants of the caravan trade between South Arabia and Egypt. Antigonus, one of the Diadochs, tried to subdue the proud sons of the desert but failed to conquer them. The Maccabees found in the Nabatæans valuable friends and supporters of their cause. (1 Macc. v. 24 ff. and ix. 35).

The proverbial aversion of the Jews to agriculture and handicraft and their unusual talents for commercial enterprises may have been inherited from the days of their desert life and would still show the influence of their ancient Yahveh religion.

Gods were realities in the times of polytheism. Each god stood for a certain idea and represented some definite social or natural forces, and it was by no means indifferent at what shrine the people worshipped. And here lies the importance of the Yahveh cult, and it appears to me the reason of its final survival. While

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[1] The holiness of Israel unto the Lord is not the holiness in the modern or even the Buddhist sense of the word. Holiness means consecration, and consecration was, according to the religious notions of the time in Judea, a condition of being pledged to a certain course of conduct. Thus קָדֵשׁ and קְדֵשָׁה acquire the meaning of male and female "prostitutes," signifying persons consecrated to indecent purposes in the temple service of Astarte. Men like Sampson were considered holy unto the Lord, yet their holiness was not a moral sanctification but a mere abstinence from the luxuries of Canaanitic civilisation.

the more advanced pagan civilisation rendered the god-conception of the people idolatrous and led civilisation away into the enervating vices of artificial conditions both in their social relations of a class-system and the habits and beliefs of city-life, the sons of the desert remained simple free men, strong in body and soul, democratic, Brutus-like in spirit, without shrinking from regicide,[1] animated by the pride of independence. It is no matter of accident that the English Puritans drew their inspiration mainly from the Old Testament, for there they found a kindred spirit that justified a war for freedom and the decapitation of a monarch,—principles which cannot be deduced from the meek morality of the New Testament.

We may mention in this connexion that the Jews, contrary to the commonly accepted notion, have always been stubborn fighters and make good soldiers still. The record of the conquest of Palestine and the destruction of Jerusalem through the Romans under Titus exhibit a most desperate resistance against superior forces.[2] There is an unwritten law in the German and other European armies not to allow Jews to become officers of the army, but they served in the ranks, and when permission was given to the Jews to celebrate Purim, there were found more than ten thousand Jews before Metz alone. An article in the *New York Tribune* proves that in the United States the Jews according to their percentage in the population did a fair share of fighting. We are told:

"The number of Jews in this country at the time of the revolutionary war was small, but even from the scant congregation there was a liberal representation in the continental army.[3]

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[1] Judges iii. 20–21.

[2] See, for instance, Cornill's *History of the People of Israel.*

[3] The statistics prepared by Mr. Wolf show that there were many Jewish officers of high rank under Washington. Among these were Colonel Solomon Bush, Captain Joseph Bloomfield, Surgeon Moses Bloomfield, Major Louis Bush, Colonel Isaac Franks, Colonel David S. Franks, Quartermaster Benjamin Hart, Colonel Isaacs, Captain Jacob de la Motta, Major Benjamin Nones, and many others, besides a large number of enlisted men. When the war was over the Jewish congregations of Savannah, Ga., and Newport, R. I., sent addresses to General Washington, who said in one of his answers: "May the children of the stock of Abraham who dwell in this land continue to merit and enjoy the good will of the other in-

"On the roster of the regular army there were up to 1895 the names of ninety-six Jews. The list includes the names of men in every branch of the service, many with a distinguished and all of them with an honorable record.

"The following list gives the number of Jews who served in the various wars:[1]

In the Continental army	46
In the War of 1812	44
In the Mexican War	58
In the United States regular army	96
In the United States navy	78
In the Civil War:	
Staff officers in the Union army	16
In the Confederate army	24
Officers in the Confederate army	11
Soldiers in the Union and the Confederate armies	7,984

The original Yahveh cult was opposed to civilisation itself, and to hand-made gods, but the good features of civilisation were gradually forced upon the children of Israel. Their original severity began to relent, and at last the people clamored for a king, which meant a surrender of one of the most important points of difference between themselves and the Gentiles. This change had apparently become a matter of necessity, a question of life and death; for Samuel, the popular leader of Israel in those days, yielded reluctantly but graciously to the demand. The change had taken place and had become an irredeemable fact; the free children of the desert had begun to live in towns and villages, and the establishment of an appropriate government became the direst need of the times. But the ideals of freedom, of a purely spiritual worship, of a belief in the nearness to God, a hatred of man-made gods, and temples built by the hands of men, remained. When the people had become accustomed to living in houses, the ideal of the desert liberty with its brotherly communism and religious fervor still lingered with them. They had adopted the habits of agricultural life, but they still remembered the old tradition, and making a compromise with the faith of their fathers, they set apart

habitants, while every one shall sit in safety under his own vine and fig tree, and there shall be none to make him afraid."

[1] Considering the present percentage of Jews in this country, the figures are not extraordinarily large, still they prove that the fighting metal of the Jews is commonly underrated.

the seventh year for Yahveh as a year-sabbath, and celebrated the fiftieth as a jubilee in which they started life over again, returning to the communism of the ancient desert life and returning to the original division of the lands. This is done to remember the nomadic freedom where the land belongs to Yahveh and all the inhabitants are strangers and sojourners with him. We read in Leviticus xxv:

"Six years thou shalt sow thy field, and six years thou shalt prune thy vineyard, and gather in the fruit thereof; but in the seventh year shall be a sabbath of rest unto the land, a sabbath for the Lord: thou shalt neither sow thy field, nor prune thy vineyard. That which groweth of its own accord of thy harvest thou shalt not reap, neither gather the grapes of thy vine undressed: for it is a year of rest unto the land.

"And thou shalt number seven sabbaths of years unto thee, seven times seven years; and the space of the seven sabbaths of years shall be unto thee forty and nine years. Then shalt thou cause the trumpet of the jubile to sound on the tenth day of the seventh month, in the day of atonement shall ye make the trumpet sound throughout all your land. And ye shall hallow the fiftieth year, and proclaim liberty throughout all the land unto all the inhabitants thereof: it shall be a jubile unto you; and ye shall return every man unto his possession, and ye shall return every man unto his family. A jubile shall that fiftieth year be unto you: ye shall not sow, neither reap that which groweth of itself in it, nor gather the grapes in it of thy vine undressed. For it is the jubile; it shall be holy unto you: ye shall eat the increase thereof out of the field.

"Ye shall not therefore oppress one another; but thou shalt fear thy God: for I am the Lord your God.

"The land shall not be sold for ever: for the land is mine; for ye are strangers and sojourners with me."

Ideals do not die. If they are wrong, they will be purified, but they cannot easily be eradicated; and the men who endeavored to preserve the old ideals of the original Yahveh worship secluded themselves and continued to live after the fashion of the Kenites and Rechabites. They were called Nazirees[1] or separatists, נְזִירִים being likened unto the vines of the sabbath year when they remain unclipped and are not touched by the pruning knife.[2]

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[1] In the English version they are called "Nazarites."

[2] The report of Samson's birth and the rôle which a stranger plays in it, who would not eat bread (Judges xiii. 16) and "did wondrously" in making the fire for

A remarkable conservatism of nomadic habits is exhibited in the Mohammedan custom that the pilgrims to Mecca neither shave, nor have their hair and their nails cut, nor have their hair combed, lest their bodies become defiled by human interference with the purity of untouched nature.

The Nazirees disappeared in the course of time, but during the national reawakening in the wars of the Maccabees, the imagination of the people was haunted by old recollections[1] and we hear again of Nazirees. Yet there is this difference: While the old Nazirees were men and women who continued in their old habits and regarded it a matter of conscience not to be contaminated by the luxuries of civilisation, the Nazirees of the days of the Maccabees became an institution which had a regular standing in the religious organisation of the country, and was rather the product of an artificial zeal for archaistic conditions.

There were Nazirees who took the vow for a certain time and there were Nazirees for life, and it is more than simply probable that the sect of Nazarenes[2] are the lineal descendants of the old Nazirees in the historical evolution of Judaism. We retain the word Nazarene for men like John the Baptist and the whole organisation of the pious Jewish sect from which Jesus of Nazareth proceeded, in order to distinguish them from the old Nazirees, or Nazarites.

The Nazarenes are characterised by an adhesion to communism; they lived in the simplest possible manner and looked upon the rich as destined to eternal punishment in Gehenna.

The main difference between the Nazarenes and their predeces sors, the ancient Nazirees, consists in the Gnostic tendencies[3] of the former which originated in Syria under the influence of the religious speculations of India, after the removal of the national bar-

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the burnt offering, is very instructive, and, though the story may be a legend, illustrates the life of the remnant of the Yahveh devotees.

[1] 1 Macc. iii. 49; conf. Josephus, B. f. ii. 15, 1.

[2] Greek *Ναζαραῖοι*, commonly but without sufficient reason translated "Nazarenes," not "Nazirees."

[3] We have proved in another place that Gnosticism in all its essential characteristics is a pre-Christian movement.

riers by Alexander the Great. Persian and Hindu thought seems to have affected the faith of the Nazarenes as strongly as that of the Therapeutæ of Egypt, who are an analogous and contemporaneous movement, but we cannot be blind to several traces of the old traditions of an ancient Yahvehism, which are faithfully preserved in the Nazarene movement.

John the Baptist, the leader of the Nazarenes, withdrew into the desert, "and the same John had his raiment of camel's hair and a leather girdle about his loins; and his meat was locusts and wild honey."

Whatever similarity of doctrine may have obtained between the religions of India and the Gnostic sects of Palestine—the Essenes, the Zabians, the Ebionites, and the Nazarenes—in his exterior John the Baptist apparently resembled the ancient Naziree more than a Buddhist. A Buddhist monk would not have worn a leather girdle, nor would he have eaten locusts. The son of the desert, however, limits his needs to primitive raiment and food, and would not wear a rope made of hemp by a weaver so long as he could wear a leather belt.

Jesus of Nazareth, who also was a Nazarene, speaks of himself as a nomad, saying, "The foxes have holes and the birds of the air have nests; but the son of man hath not where to lay his head."

The statements concerning Yahveh, as being originally the God of Moses's father-in-law, the Kenite, and further that the Rechabites and Nazirees were more conservative Yahveh-worshippers in their peculiar ethics and general habits of life, than the rest of the people, is an undeniable fact upon which all Biblical schools agree. All the facts upon which our arguments are based have been accepted by such Biblical scholars as are contributors to Riehm's *Handwörterbuch des biblischen Alterthums*, where the articles on Jabez, Jethro, the Kenites, the Nabatæans, the Rechabites, and the Nazirees, may be consulted with profit.

Professor Budde made the historical Yahveh and his worshippers the subject of his lectures at the University of Chicago and at other institutions of the United States, and brought out the features of the desert God with great force and clearness, setting forth

many points better than did his predecessors and colleagues, and adding much new thought of original research. But those critics of his who imagine that all these ideas have been invented by him and are held by him alone, are very ill informed on the state of Biblical criticism. We differ from Budde's views mainly as to the cause which changed the desert god into the universal god of righteousness and of truth. Budde holds that Yahveh as the God of the covenant represented a moral ideal, the ideal of fidelity. And it is due to this moral element in the character of Yahveh that he could be transformed into a God of righteousness. We believe that the desert-religion itself possesses a power of moral regeneration, being a faith in liberty and self-reliance, in brotherhood, and in the solidarity of all men, in the spirituality and omnipresent nearness of God, which are ideals that can be modified in the course of history, but will never lose their fascination for the dreamers and reformers of mankind.

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At first sight the idea is apt to shock a good Christian that Yahveh was an outspoken enemy of agriculture and civilisation; but he who is familiar with the spiritual evolution of other peoples cannot be surprised, for the Yahveh-conception of the Kenites is exactly the religion which is natural to a nomad state of existence, and our Indians have remained almost to this day under the influence of a similar, nay, in all essential points, of the very same, conviction.

The history of the Indians, since the arrival of the whites, has been a tragedy, which, considering the extent of the theater on which it is enacted and the number of nations involved, is the grandest in the world. Some blame the Indians on account of their savage manners, others blame the whites for their repeated breaches of faith; but the real cause lies deeper. The Indian as an Indian must disappear before the white, because the world-conception of the Indian is incompatible with the world-conception of the white races. The notions of justice and right, of duties and of the purpose of life, are different among the two races, and the white represent the superior and stronger civilisation, which will inevitably

expel the older and antiquated mode of life, even though ancient laws and sacred treaties may have guaranteed its continued existence forever. It is the repetition of the story of Cain and Abel. Abel, the keeper of sheep, offers to Yahveh the firstlings of his flock, and "Yahveh was pleased with Abel and his offering;" but Cain brought an offering of the fruit of the ground, and "Yahveh was not pleased with Cain and his offerings." The nomad has the religious sanction of tradition, but the God of evolution decides in favor of agriculture against the continuance of a nomadic state of life.

THE MESSENGER WHO SUMMONS THE GUESTS FOR THE MOUNTAIN CHANT DANCE.[1]

In pointing out the analogies between the Kenite Yahveh-worship and the religious belief of the North American Indian we are overwhelmed with a wealth of material and must therefore limit ourselves to such quotations as will bring out the parallelism most strikingly.

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When the whites set foot on American soil, they were first greeted as the saviors, as a superior race, as the children of the sun; but this view which made the conquest of Mexico easy to

[1] The Mountain Chant Dance is performed among the Navajos in commemoration of the happy escape of a young warrior from the Utes, a hostile tribe that

the Spaniards changed into bitter hostility when the American natives could no longer doubt the perfidious rascality of the invaders. Since then prophets have arisen from time to time and their doctrines, although different in their details, were always to the same purpose and preached the same religion, which bears a close analogy to the Yahveh cult of the Kenites. The Indian prophets all claim to have been in the presence of God. And the God of the Indians, whatever be his name, *Manitou*, the great spirit; *Ságakee Tyee*, the great chief above; *Nämi Piäp*, our brother; *Manabozho*, the great first doer; *Pachacama*, world-quickener, etc., etc., is always a God of nomadic convictions. Therefore these prophets teach a rigorous abstinence from all the boons of civilisation. The white man's dress, his flint and steel gun, every tool, must be discarded and also fire water and other strong drinks; and the Indians must return to the customs of their fathers, be clad in buckskin, use the fire sticks for making fire, and make an honest living by fishing and hunting, and hold all property in common. At the same time they bid the Indian to be of good cheer, they need not be afraid of the superiority of the white man's weapons, for Manitou, the Great Spirit, will fight for his people.

While pointing out the errors of these prophets we must not conceal the fact that all of them exercised a very good influence upon their people, inducing them to abandon drunkenness, wife-beating, adultery, stealing, and other crimes.

The burden of the message of the oldest prophet of whom we have definite and detailed information, the prophet of the Delawares

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had captured him, and is believed to cure diseases of any kind by the assistance of the unseen powers that are invoked in the ceremony. The messenger bears feathers of the wild turkey on his arms, symbolising wings. The eagle feathers on his head bode success. The plumed wand indicates the sacredness of his mission. The collar of beaver skin with a whistle attached to it is his sign of recognition, and in a bag of fawnskin he carries consecrated cornmeal which he sprinkles over rocks and tree-roots on his path, for counteracting evil influences.

Dances played an important part in the religious worship of the Hebrews, and so they do still among the American Indians. Each dance has its own significance, and is supposed to confer, by its symbolism, blessings of various kinds, success in war, salvation from danger, recovery from sickness, rain after a drought, good luck in hunting and fishing, etc., etc., upon those who participate in its performance.

who made his appearance at Tuscarawas in 1762, is "a return to the old Indian life which he declared to be the divine command, as revealed to himself in a wonderful vision." In the name of "the Master of Life," he says:[1]

"Did not your bow and arrow maintain you? You needed neither gun, powder, nor any other object. The flesh of animals was your food; their skins your raiment. But when I saw you inclined to evil, I removed the animals into the depths of the forest that you might depend on your brothers for your necessaries, for your clothing. Again become good and do my will and I will send animals for your sustenance."

The idea of purification occurs as frequently in the sermons of the Indian prophet as in the Mosaic law, but it would be wrong to interpret either in the sense in which the word is used to-day. John McCullough who had been taken by the Indians when a child of eight years and lived among them for some years speaks as follows of the hieroglyphics of the Delaware prophet which were used to impress his doctrines (*loc. cit.*, p. 668):

"The first or principal doctrine they taught them was to purify themselves from sin, which they taught they could do by the use of emetics and abstinence from carnal knowledge of the different sexes; to quit the use of firearms, and to live entirely in the original state that they were in before the white people found out their country. Nay, they taught that that fire was not pure that was made by steel and flint, but that they should make it by rubbing two sticks together. . . . It was said that their prophet taught them, or made them believe, that he had his instructions immediately from *Keesh-she-la-mil-lang-up*, or a being that *thought* us into being, and that by following his instructions they would, in a few years, be able to drive the white people out of their country.

"I knew a company of them who had secluded themselves for the purpose of purifying from sin, as they thought they could do. I believe they made no use of fire arms. They had been out more than two years before I left them. . . . It was said that they made use of no other weapons than their bows and arrows. They also taught, in shaking hands, to give the left hand in token of friendship, as it denoted that they gave the heart along with the hand."

Pontiac, the hero of the first general uprising of the Indians, is greatly influenced by the Delaware prophet (*loc. cit.*, p. 669):

"The history of this war, so eloquently told by Parkman, reads like some old knightly romance. The warning of the Indian girl; the concerted attack on the

[1] *Fourteenth Annual Report of the Bureau of Ethnology*, 1892–1893, p. 665.

garrisons; the ball play at Mackinac on the king's birthday, and the massacre that followed; the siege of Fort Pitt and the heroic defense of Detroit; the bloody battle

of Bushy run, where the painted savage recoiled before the kilted Highlander, as brave and almost as wild; Bouquet's march into the forests of the Ohio, and the submission of the vanquished tribes—all these things must be passed over here. They have already been told by a master of language. But the contest of savagery against civilisation has but one ending, and the scene closes with the death of Pontiac, a broken-spirited wanderer, cut down at last by a hired assassin of his own race, for whose crime the blood of whole tribes was poured out in atonement."

Other prophets arose among the Shawano. One of them is Laulewasikaw, who later on called himself Tenskwatawa, which may be translated by the messenger of the gospel, the literal meaning being "the open door," leading to happiness.[1] He announced himself as the bearer of a revelation from "the Master of Life," and declared that he "had been taken up to the spirit-world where he was permitted to lift the veil of the past and the future . . . he announced that he had re-

[1] Both portraits on this page represent Tenskwatawa, the Shawano prophet.

ceived power to cure all diseases and to arrest the hand of death in sickness or on the battlefield." He condemned the sorcery and witchcraft practices and showed a great zeal for his cause. Nor did he shrink from ridding himself by cruel death penalties of all who dared to oppose his sacred claims.

TECUMTHA.[1]

The first portrait is taken from one given in Lossing's *American Revolution and War of 1812*, III (1875), p. 189, and thus described: "The portrait of the Prophet is from a pencil sketch made by Pierre Le Dru, a young French trader, at Vincennes, in 1808. He made a sketch of Tecumtha at about the same time, both of which I found in possession of his son at Quebec in 1848, and by whom I was kindly permitted to copy them." The other is a copy of the picture painted by Catlin in 1831, after the tribe had removed to Kansas. The artist describes him as blind in one eye, and painted him holding his medicine fire in his right hand and his sacred string of beans in the other.

[1] The name Tecumtha means literally "I cross the path of some one," which has been translated "the panther lying in wait," "crouching lion," or "shooting

Tecumtha, the greatest Indian hero and a military genius of first rank, who became an ally of the English for the sake of fighting the Americans, was an incarnation of the traditional religion of his race, and he was seriously using his words in their literal sense when he said "the sun is my father, and the earth is my mother. On her bosom I will rest."

The restlessness of the Creek Indians and the long bloody war subsequent thereto is probably due to a visit of Tecumtha, but at any rate their enthusiasm found expression in prophecies which promised that "instead of beef and bacon they would have venison and instead of chickens they would have [wild] turkeys."

Kănakûk, the Kickapoo prophet, had seen the Great Spirit who

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star." The animal is not mentioned in the original but is suggested by the fact that Tecumtha belongs to the Shawano clan of the clawfoot beasts, such as the panther, the lion, etc.

His historian in the *Annual Reports of the Bureau of Ethnology*, 1892–1893, says of him: "His father had fallen under the bullets of the Virginians while leading his warriors at the bloody battle of Point Pleasant, in 1774. His eldest and dearest brother had lost his life in an attack on a southern frontier post, and another had been killed fighting by his side at Wayne's victory in 1794. What wonder that the young Tecumtha declared that his flesh crept at the sight of a white man!"

His appearance is characterised as, "Of commanding figure, nearly six feet in height and compactly built; of dignified bearing and piercing eye; with the fiery eloquence of a Clay and the clear-cut logic of a Webster; abstemious in habit, charitable in thought and action, brave as a lion, but humane and generous withal, —in a word, an aboriginal American knight,—his life was given to his people, and he fell at last, like his father and his brothers before him, in battle with the destroyers of his nation, the champion of a lost cause and a dying race.

"He hated the whites as the destroyers of his race, but prisoners and the defenseless knew well that they could rely on his honor and humanity and were safe under his protection.

"When only a boy—for his military career began in childhood—he had witnessed the burning of a prisoner, and the spectacle was so abhorrent to his feelings that by an earnest and eloquent harangue he induced the party to give up the practice forever. In later years his name was accepted by helpless women and children as a guaranty of protection even in the midst of hostile Indians.

"Three small silver crosses or coronets were suspended from the lower cartilage of his acquiline nose, and a large silver medallion of George the Third, which I believe his ancestor had received from Lord Dorchester when the latter was governor-general of Canada, was attached to a mixed-colored wampum string and hung round his neck. . . . The portrait of Tecumtha above given is from a pencil sketch by Pierre Le Dru, in which he appears as a brigadier-general of the British army."

commanded him to tell his people (*loc. cit.*, p. 695) "not to steal, not to tell lies, not to murder, not to quarrel, and to burn their medicine bags. If they did not, they could not get on the straight way, but would have to go to the crooked path of the bad."

Kānakûk used a peculiar prayer-stick which is said to be similar to the hieroglyphics of the Deleware prophet of 1764, and is in line with the whole system of birchbark pictographs among the northern tribes. Mr. Mooney describes the prayer-sticks as follows:

On-Saw-Kie.[1]
Reading his prayers from the prayer-stick of the Shawnee prophet.

"These sticks were of maple, graven with hieroglyphic prayers and other religious symbols. They were carved by the prophet himself, who distributed them to every family in the tribe, deriving quite a revenue from their sale, and in this way increasing his influence both as a priest and as a man of property. Apparently every man, woman, and child in the tribe was at this time in the habit of reciting the prayers from these sticks on rising in the morning and before retiring for the night. This was done by placing the right index finger first under the upper character while repeating a short prayer which it suggested, then under the next, and the next, and so on to the bottom, the whole prayer, which was sung as a sort of chant, occupying about ten minutes" (*loc. cit.*, p. 697).

Of Smohalla, a chief of the Wánapûm and the prophet of the Nez Percé, it is asserted that "he has never worn the white man's dress or had his hair cut"—a custom which prevailed among the

[1] From a sketch of the *Annual Report of the Bureau of Ethnology*, 1888–1889, p. 510. Another portrait of On-Saw-Kie will be found in the *Annual Reports* of 1892–1893, on p. 698.

Nasirim devotees among the ancient Israelites who were zealous in their faith in Yahveh and resembled the Rechabites. The answer he gave to Major McMurray in explanation of his dissatisfaction with the white people and their laws shows that he regarded private property as the root of all evil. He said:

"Once the world was all water and God lived alone. He was lonesome, he had no place to put his foot, so he scratched the sand up from the bottom and made the land, and he made the rocks, and he made trees, and he made a man; and the man had wings and could go anywhere. The man was lonesome, and God made a woman. They ate fish from the water, and God made the deer and other animals, and he sent the man to hunt and told the woman to cook the meat and to dress the skins. Many more men and women grew up, and they lived on the banks of the great river whose waters were full of salmon. The mountains contained much game and there were buffalo on the planes. There were so many people that the stronger ones sometimes oppressed the weak and drove them from the best fisheries, which they claimed as their own. They fought and nearly all were killed, and their bones are to be seen in the hills yet. God was very angry at this and he took away their wings and commanded that the lands and fisheries should be common to all who lived upon them; that they were never to be marked off or divided, but that the people should enjoy the fruits that God planted in the land, and the animals that lived upon it, and the fishes in the water. God said he was the father and the earth was the mother of mankind; that nature was the law; that the animals, and fish, and plants obeyed nature, and that man only was sinful. This is the old law." (*Loc. cit.*, pp. 720–721.)

The ethics of the Indian prophet remind us strongly of the answer given to Jaazaniah by the Rechabites. Smohalla continued:

"You ask me to plow the ground! Shall I take a knife and tear my mother's bosom? Then when I die she will not take me to her bosom to rest.

"You ask me to dig for stone! Shall I dig under her skin for her bones? Then when I die I cannot enter her body to be born again.

"You ask me to cut grass and make hay and sell it, and be rich like white men! But how dare I cut off my mother's hair?

"It is a bad law, and my people cannot obey it. I want my people to stay with me here. All the dead men will come to life again. Their spirits will come to their bodies again. We must wait here in the homes of our fathers and be ready to meet them in the bosom of our mother." (*Ibid.*)

Major McMurray objected that the Indians also dug up roots, but Smohalla replied in further explanation of his views:

"We simply take the gifts that are freely offered. We no more harm the earth than would an infant's fingers harm its mother's breast. But the white man tears up large tracts of land, runs deep ditches, cuts down forests, and changes the whole face of the earth. You know very well this is not right. Every honest man," said he, looking at me searchingly, "knows in his heart that this is all wrong. But the white men are so greedy they do not consider these things." (*Loc. cit.*, p. 724.)

Many prophets and Messiahs have risen among the Indians and most of them preached war and perished in the war they had excited. But at last an apostle of peace came, the Messiah Wovoka, who in recent years established among the tribes in the far North West a new religious ceremony called the Ghost-dance which teaches goodwill among men on earth, a resurrection of the dead, and life everlasting.

Wovoka, the prophet of the Ghost-dance religion, was born about 1855. He is the son of Tăvibo, a chief of Mason Valley, reported to have been "a dreamer endowed with supernatural powers and reported to have been invulnerable.[1]

The revelation which Wovoka received from the hands of God is described as follows:

"'The sun died' (was eclipsed) and he (Wovoka) fell asleep in the daytime and was taken up to the other world. Here he saw God, with all the people who had died long ago engaged in their oldtime sports and occupations, all happy and forever young. It was a pleasant land and full of game. After showing him all, God told him he must go back and tell his people they must be good and love one another, have no quarreling, and live in peace with the whites; that they must work, and not lie or steal; and they must put away all the old practices that sa-

[1] Wovoka means "the Cutter." He lived for some time with David Wilson, a white man, who took great interest in him and gave him the name Jack Wilson. Later on the prophet assumed the name of his paternal grandfather Kwohitsang (Big Rumbling Belly). Thus he is known by three names, but his own people call him "Our Father." His father's name Tăvibo means "White Man," which has given rise to the notion that Wovoka is a half-breed; but he is a pure Indian and practically speaks only his native tongue, the Paiute language (A. R. 92–93, p. 771), his English being, as Mr. Mooney states (*ib.*, 767), intolerable. There has been no, or at any rate very little, white influence on the formation of his religion. The paper on which the report of the Ethnological Bureau is based, "was taken down on the spot from the dictation of the Messiah as his message to be carried to the prairie tribes" (*ib.*, p. 776). Mr. Mooney adds: "No white man had any part, directly or indirectly, in its production, nor was it originally intended to be seen by white men."

THE ECSTASY OF THE GHOST DANCE.

vored of war; that if they faithfully obeyed his instructions they would at last be reunited with their friends in this other world, where there would be no more death or sickness or old age. He was then given the dance which he was commanded to bring back to his people. By performing this dance at intervals, for five consecutive days each time, they would secure this happiness to themselves and hasten the event. Finally God gave him control over the elements so that he could make it rain or snow or be dry at will, and appointed him his deputy to take charge of affairs in the West, while 'Governor Harrison' would attend to matters in the East, and he, God, would look after the world above. He then returned to earth and began to preach as he was directed, convincing the people by exercising the wonderful powers that had been given him." (*Loc. cit.*, 771–772.)

Here is a summary of Wovoka's religion:

"The great underlying principle of the Ghost-dance doctrine is that the time will come when the whole Indian race, living and dead, will be reunited upon a regenerated earth, to live a life of aboriginal happiness, forever free from death, disease and misery. . . . Different dates have been assigned at various times for the fulfillment of the prophecy. . . . The Messiah himself has set several dates from time to time, as one prediction after another failed to materialise, and in his message to the Cheyenne and Arapaho, in August, 1891, he leaves the whole matter an open question. . . . The moral code inculcated is as pure and comprehensive in its simplicity as anything found in religious systems from the days of Gautama Buddha to the time of Jesus Christ. '*Do no harm to any one. Do right always.*' Could anything be more simple, and yet more exact and exacting? It inculcates honesty—'*Do not tell lies.*' It preaches good will—'*Do no harm to any one.*' It forbids the extravagant mourning customs formerly common among the tribes—'*When your friends die, you must not cry,*' which is interpreted by the prairie tribes as forbidding the killing of horses, the burning of tipis and destruction of property, the cutting off of the hair and the gashing of the body with knives, all of which were formerly the sickening rule at every death until forbidden by the new doctrine. . . . It preaches peace with the whites and obedience to authority until the day of deliverance shall come. Above all, it forbids war—'*You must not fight.*'"

"It is hardly possible for us to realise the tremendous and radical change which this doctrine works in the whole spirit of savage life. The career of every Indian has been the warpath. His proudest title has been that of warrior. His conversation by day and his dreams by night have been of bloody deeds upon the enemies of his tribe. His highest boast was in the number of his scalp trophies, and his chief delight at home was in the war dance and the scalp dance. The thirst for blood and massacre seemed inborn in every man, woman, and child of every tribe. Now comes a prophet as a messenger from God to forbid not only war, but all that savors of war—the war dance, the scalp dance, and even the bloody torture of the sun dance—and his teaching is accepted and his words obeyed by four fifths

PRAYING IN THE GHOST DANCE.

of all the warlike predatory tribes of the mountains and the great plains. Only those who have known the deadly hatred that once animated Ute, Cheyenne, and Pawnee, one toward another, and are able to contrast it with their present spirit of mutual brotherly love, can know what the Ghost-dance religion has accomplished in bringing the savage into civilisation. It is such a revolution as comes but once in the life of a race."[1] (*Loc. cit.*, pp. 777–783.)

The extent and the intensity of the devotion of the prairie tribes to the new religion are remarkable. The reception which Mr. Mooney had among the Indians after his interview with the Messiah is a good evidence of the power of the new faith. He says:

"On returning to the Cheyenne and Arapaho in Oklahoma, after my visit to Wovoka in January, 1892, I was at once sought by my friends of both tribes, anxious to hear the report of my journey and see the sacred things that I had brought back from the Messiah. The Arapaho especially, who are of more spiritual nature than any of the other tribes, showed a deep interest and followed intently every detail of the narrative. As soon as the news of my return was spread abroad, men and women, in groups and singly, would come to me, and after grasping my hand would repeat a long and earnest prayer, sometimes aloud, sometimes with the lips silently moving, and frequently with tears rolling down the cheeks, and the whole body trembling violently from stress of emotion. Often before the prayer was ended, the condition of the devotee bordered on the hysterical, very little less than in the Ghost-dance itself. The substance of the prayer was usually an appeal to the Messiah to hasten the coming of the promised happiness, with a petition that, as the speaker himself was unable to make the long journey, he might, by grasping the hand of one who had seen and talked with the Messiah face to face, be enabled in his trance visions to catch a glimpse of the coming glory. During all this performance the bystanders awaiting their turn kept reverent silence" (*ibid.*, p. 778).

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We are at the end of our discussion. A comparison of the similarities of Yahveh and Manitou and an explanation of the vari-

[1] Probably all the tribes west of the Missouri River (about 146,000 souls), excepting the five civilised nations of the Indian Territory, heard of the new doctrine. The Paiute, the Shoshoni, the Arapaho, the Cheyenne, the Caddo, the Pawnees, and others, have almost unanimously accepted it. But of the Comanche only a small minority, and of the Sioux about one half of the 26,000, took an active part in the ceremony. "It may safely be said, however, that the doctrine and ceremony of the Ghost-Dance found more adherents among our tribes than any similar Indian religious movement, with the single possible exception of the crusade inaugurated by Tenskwatawa, the Shawano prophet, in 1805" (*ib.*, p. 926–927).

cus dissimilarities is not needed. Both are sufficiently apparent. But before we close we may be allowed to point out a lesson.

The old God-conception which was strongly anthropomorphic led to a narrow and almost childish conception of the nature of revelation. God was supposed to have neglected all other nations and to have repaired in person to Mount Sinai. He marched with the Israelites through the desert as a pillar of fire by night and a pillar of smoke by day. He worked miracles after the fashion of the Indian medicine man, and did not scorn to let his prophets vie in skill with Egyptian jugglers. Moses and Jethro are regarded as men of God, but some of our missionaries do not hesitate to denounce the Indian prophets as misguided villains who are inspired by the Devil.

Let us be just. Let us recognise that God speaks to mankind at sundry times and in divers manners (Hebr., i. 1). The Indian prophets with all their shortcomings are as truly inspired as the Hebrew prophets, although we grant that the latter were grander in their outlooks and at the same time more fortunate in forming links in the chain of a development that was destined to bring forth in due season the fruit of a more and more purified religion. We have the same fervor of prayer, the same vigor of religious conviction in both cases, and there is a similarity in the successive phases of the religious light which both are able to receive and comprehend. There are similar errors, similar temptations, similar trials, and the trials are hard. Many go to the wall on account of their narrowness which to them appears as faithfulness to God. But a remnant is left, and the remnant preserves the old ideals in a broadened conception which is truer and better than the narrow belief of the fathers.

It is difficult and even impossible to understand the ways of God from the old standpoint, but he who has received the clearer light of a scientific conception of the nature of religion in the light of the doctrine of evolution will comprehend the situation. We learn by experience. The explanations of mysteries of the human soul and the solutions of the problems of life are not given us directly and bodily, as a n aterial gift can be handed over to one who

wants it, but must be the fruit of graduated lessons. Revelation is not one-sided, coming down upon earth from on high, but it grows in the heart of man by a gradual increase of man's divinity. If the truth shall bring salvation, it must become our own possession, it must be acquired by our own exertions.

Mankind started with ideals which were wrongly interpreted and became frequently a hindrance to progress. They cherished the ideals of nomad ethics, of life as a pilgrimage through a desert, of the kinship and solidarity of all the classes of society, the rich as well as the poor, the master and the slave, and last but not least, of a direct communion with the Divinity that shapes our ends. A fidelity to the errors of this desert religion, the belief in miracles, the efficacy of sacrifice and ritual, the sanctity of the letter of the law, and the magic intercession of some divine power, frequently brought destruction to the Jews, as it still helps to ruin the American Indians who continue to place their trust in the effectiveness of the incantations of their prophets. But for all that the ideal remains the same. Our sense of property may change, but the responsibility of the rich, the strong, the powerful, for their less fortunate fellows will remain unaltered. We remain brothers; we remain children of the same Deity; we remain pilgrims through the desert of life; we remain prophets of an omnipresent divine revelation which has not as yet become a closed book; we remain dreamers, and our dreams are the budding future of our race. Our dreams after all are realities: they are vaticinations of the things that will be.

It is probably no accident that Christianity, the new religion that sprung up in Palestine, was in all the intentions of its original founders, the Nazarenes, simply a reaction. Luther did not know that he represented an advance in the history of Christianity; he thought that he was a reformer, nothing more. That is the fate of progress. We return to the ideals of the past, and all the reformers of mankind become through their reactionary measures builders of a higher and better future. All of them built better than they knew.

Let us not lose confidence in the possibilities of religious progress, and if progress comes in the shape of a reform, by looking back to the ideals of the past, we need not fear that it will throw us back into barbarism. Mankind is still advancing, and no one can prevent the growth of a truer, nobler, and greater conception of the religious problem.

EDITOR.

THE CONTEMPORARY MOVEMENT IN FRENCH PHILOSOPHY.

RENAN AND TAINE addressed the general public. While their books have been admired and widely read, and have served as vehicles for ideas which were destined to become popular, a number of works of a more specially philosophical nature, and therefore appealing to a far less numerous class of readers, have appeared in France, bearing witness to the speculative activity of the country.

At the first glance that we cast upon the latter half of the nineteenth century, we are struck with the extreme variety, or, more accurately speaking, with the isolation and fortuitous distribution of theories. There is no powerful and dominant school sufficiently representative of the spirit of the time to rally the great majority of thinking minds, as had been done by Cartesianism, by the philosophy of the Encyclopædists, and even by Eclecticism about the year 1830 Each philosopher, jealous of his independence, follows his own course. Many, out of dislike for quackery and oratorical philosophy, withdraw into a sort of disdainful privacy, which has its advantages as well as its drawbacks. It is certainly to be regretted that philosophical speculation should seem to confine itself within an "ivory tower," abstaining from intimate intercourse with contemporary life; it thus runs the risk of assuming a formal, narrow, scholastic character, and of bestowing much energy and skill upon problems of purely factitious interest. History shows that this danger is far from imaginary. On the other hand, it is no less dangerous for philosophy to seek avowedly the immediate favor of

the public; the reason for this is evident. The philosophers of whom we are speaking have at least escaped the latter peril. Remote from the crowd and unknown to it, unknown for some time even to all but specialists in their own line, there was nothing to disturb the elaboration of their doctrines.

It is also a noteworthy fact that they nearly all began by writing on the history of philosophy. In the eighteenth century, Kant remarked that, being entirely absorbed in his own system, he had no time to familiarise himself with those of others. In the second half of the nineteenth century, on the contrary, nearly every philosopher thinks himself bound, before producing a new system, to be thoroughly acquainted with the previous ones. The history of philosophy had, indeed, just been revived in France by Cousin, and, besides, there was a general increase of the feeling of historical solidarity. Was it not natural, therefore, that philosophy, as well as the other moral sciences, should feel the effect of it?

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Thus it happens that, though there is not found in this period any theory which has given rise to a wide and powerful philosophical current, it remains possible to locate the various doctrines, either in the general course of some great pre-existing current, or at the junction of several.

Apart from eclecticism and positivism, it seems that we may distinguish four main currents:

First, a Kantian current, derived in part from Kant's theoretic philosophy, and in part from his moral philosophy;

Second, a metaphysical current, a reaction against positivism and against critical and relativist doctrines in general, proceeding from the great modern metaphysical systems, and more particularly from Leibniz and Schelling;

Third, an evolutionist current, clearly following Lamarck, Darwin, and Mr. Herbert Spencer;

Fourth and last, a current which may be termed separatist, and which, being more or less directly derived from Comte, is disposed to abandon the old conception of philosophy, and to organise scientific and positive psychology, ethics, and sociology.

This, without counting a great many secondary currents and under-currents which we should be obliged to characterise, were not this sketch necessarily a very summary one.

* * *

Eclecticism is still the philosophy officially taught in France. This prerogative, which assures it a positive influence upon the intellectual development of the nation, is harmful to it in other respects. Being subject to considerations of a political rather than a philosophical nature, it has not been possible for the system either to develop or to rehabilitate itself. Eclecticism no longer investigates, it merely teaches, said one of its adversaries (M. Renouvier). Fortunately, intellectual originality never renounces its rights. Aside from M. Vacherot, who did not hesitate to part from the school in order to try to found a new spiritualistic system, there are M. Bouillier, who has written a conscientious history of the Cartesian philosophy, Bersot, the author of ingenious moral essays, and Caro, who produced brilliant critical studies. Frank published a philosophical dictionary to which all the best men of the school contributed; M. Lévéque has applied the principles of eclecticism to æsthetics.

Paul Janet has employed his clear and sound judgment in the consideration of the most various subjects. Not only did he develop the doctrine of eclecticism in his *Morale*, his *Causes finales*, but he has discussed contemporaneous questions in many works such as *Le cerveau et la pensée*, *La crise contemporaine*, and has made important contributions to the history of philosophy, such as: *L'histoire des idées et des théories politiques*, *L'histoire de l'école St. Simonienne*, and a biography of his master V. Cousin, in which he has established the truth on several important points. M. Janet has been a rare example of perfect fidelity to the doctrine he had adopted in his youth, united with a broad sympathy for all attempts to establish new theories. His respect for philosophical liberty, which he does not separate from other kinds of liberty, permits him to be at once extremely dogmatic and yet sincerely impartial towards his adversaries, the fiercest of whom have always been willing in the end to do him justice.

"Eclectic spiritualism" had none the less to contend against an opposition growing in strength and number, which was more hostile to its method even than to its conclusions. M. Renouvier reproached it with having neither a clear and consistent method, nor sincerity, nor precision; with borrowing its dogmas "from theological traditions which have now become pure conventionalities," and with being afraid of logic. Other equally severe attacks have been repeatedly directed against it. Especially after the death of Cousin, eclecticism constantly lost ground. Indeed, more than one philosopher whose metaphysical convictions were not really very different from those of eclecticism, honestly felt compelled to combat it in order to establish his own views.

On the other hand, whilst the spirit of positivism was constantly gaining new influence and spreading by a thousand channels through the mass of the nation, the adherents of the system properly so called did not increase in numbers. The peculiar style and the extravagant pretensions of Auguste Comte's later works had done great injustice to the very essence of *La philosophie positive*, with the original text of which few people were acquainted. The schism in the school and the quarrels which ensued had also produced an unfortunate impression. Littré, the real standard-bearer of the doctrine, although a dissenting disciple, was a scientist rather than a philosopher, and if he made clear Comte's copious and prolix thought, we must confess it was at the cost of its richness and depth. Orthodox positivists, under the guidance of M. Pierre Laffite, kept close within their church. The time had come for the revival of metaphysical speculation.

* * *

This revival, which had given tokens of its approach as early as the middle of the century, assumed various shapes according to the predominance in it of the spirit of dogmatic metaphysics, or of the influence of the Kantian criticism. The philosophy of M. Ravaisson belongs to the first class, and is derived in various proportions from Aristotle, Leibniz, and Schelling. According to M. Ravaisson, all philosophical systems may be reduced to three types, which are so many points of view from which the truth is more or

less thoroughly perceived. On the lowest stage are the empiric philosophies. They are blind to all that is not revealed to the senses. These systems are not false in their affirmations; but what they deny is infinitely more real than what they take to be the only reality. Above these, on an intermediate stage, rank the philosophies of the understanding, such as Stoicism and Kantism. They recognise, indeed, that the mind has its proper activity, but they believe it incapable of rising above certain insurmountable barriers, such as time, space, causality, and there they stop. Lastly, on the summit, are the systems of metaphysics which have understood that sentient and even discursive knowledge would not be possible did there not exist an intuition of the reason, in which real being, the absolute, reveals itself without any intermedium, and by which reason is united to the absolute as to the perfect principle of all existence, of all knowledge, of all beauty, and of all force. To this system are added a philosophy of nature which shows the eternal ascent of imperfect beings towards the all-perfect being who is both their cause and their end, and a philosophy of history which sees in religion and art revelations parallel to that of reason.

The philosophy of Secrétan, contemporary with that of M. Ravaisson, is also allied to Schelling's second system, but more closely. It has moral and religious tendencies. M. Secrétan's main effort was to reconcile and even to identify with the dogmas of his Christian belief the metaphysical conclusions which result from his speculation. He was a Protestant and accordingly enjoyed the liberty necessary to treat such questions. He speaks as a theologian no less than as a philosopher when he touches upon the formidable problems of the origin of the world, of the divine personality, and of the explanation of evil. His supreme principle is the idea of God's absolute liberty, which great metaphysicians, such as Descartes, had already affirmed before him. From it he infers the possibility of chance in the world and of liberty in man.

In the latter part of his life Secrétan had lost much of his interest in such a lofty and abstruse science of metaphysics. Not that he had ceased to believe it true; but he thought it less necessary. Duty, being manifested to the conscience as a categorical

imperative, now seemed to him a sufficient revelation of the Absolute. Therefore, laying aside these speculative difficulties which are calculated to make even the most powerful minds dizzy, he directed his efforts to moral and social questions. He felt how serious are the problems set before all Europe by socialism, and sought the solution of these, not as an economist, but as a philosopher and a Christian. Yet it was chiefly his *Philosophie de la liberte* which exercised upon French thought a slow but deep and lasting influence. This influence is found more or less distinctly permeating the numerous philosophies of liberty which have appeared in the second half of the present century, and is particularly visible in M. Fouillée's teachings.

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If Kant's philosophy met with little response in France in the first half of this century, it was not because it was unknown; on the contrary, even in the earlier years of the century we find it mentioned and criticised. But no one had stopped to investigate it thoroughly, either because many thought with Schelling and Hegel that it suffered from being over-subjective; or more probably because, as most eclectic philosophers said, its idealism seemed to end in a sort of scepticism. As Kant denies to human reason the capacity to solve metaphysical problems dogmatically, to demonstrate the existence of God and the immortality of the soul, he is in their eyes a sceptic. All the arguments against sceptics in general hold good against him, and there is no need of paying any further attention to him. So it happened that the first men who began afterwards to study the text of Kant felt as though they were making a discovery. Instead of a negative and sceptical system, they found one of the most powerful efforts ever made by the human mind to measure the scope of its own faculties and to reconcile the demands of science with those of morality. The effect of this discovery was not long delayed; it gave a new impulse to philosophical studies in France, and several original systems appeared, all drawing inspiration from Kant's ideas.

These were chiefly idealistic systems, as had been the case in Germany also. M. Lachelier, for instance, in seeking for the fun-

damental principles of induction, came to the conclusion that a science of nature would be an impossibility if the laws of thought were not at the same time, as Kant maintained, the constitutive laws of nature. But for all that, M. Lachelier does not adopt the theory of space, time, and categories enunciated by Kant in the *Critique of Pure Reason*, which concedes to our science only a relative value, and denies to man the knowledge of things as they are in themselves. M. Lachelier, on the contrary, believes that there is a method, i. e., reflexion, by which our thought may contemplate and possess itself in its very essence, and that, having reached this point, it has attained to absolute being and has nothing to seek beyond itself. This was a singularly refined form of idealism, which goes beyond Kant and connects with Leibniz; sensible knowledge being conceived, after the fashion of Leibniz, as an obscure form of intellection. The concepts of space and time, instead of being imposed upon human knowledge, as in Kant's system, without our knowing how or why, are deduced from the very essence of thought by an effort of reflexion. Thus a purely idealistic doctrine is propounded, according to which "ideas are given before sensations and laws before facts." After being expounded in lectures given at the École Normale, and summed up in a vigorous and concise little book, this form of idealism had to struggle against the diffuse influence of positivism, and against the increased favor bestowed upon English empiricism. It aroused and maintained a taste for metaphysical speculation. Itself a product of Kant's critical method, it occasioned in its turn the production of new doctrines, which owed to it at least their initiative.

Such is the doctrine of M. Boutroux, who, in his remarkably profound book, *La contingence des lois de la nature*, asked whether the laws of nature were absolutely immutable, or whether they might not admit of some sort of contingency affording scope for the free activity of rational beings. He proved that an absolutely rigorous necessity is inconceivable to our minds; then from a scientific point of view he pointed out further that even the laws of science do not imply the absolute necessitarianism which has been claimed for them. As we consider more complex and richer orders

of reality, after the world of inanimate nature the world of life, after the world of life the world of thought and morality, the degree of contingency permitted by the laws of phenomena also becomes more apparent, and liberty at last asserts its presence in man's consciousness. That which is subject to measurement and calculation, which presents an aspect of perfect regularity, uniformity, and necessity, is but the surface of things; at bottom Leibniz's principle of the indiscernible is true; there never are two entirely identical beings or phenomena; no general formula is adequate to the ever-changing spontaneity of reality. But M. Boutroux, who has a thorough knowledge of the great systems of the past, and has thoroughly investigated their evolution, preserves a critical attitude towards metaphysical principles instead of merely drawing these inferences from them. He is alert to the postulates and results of positive sciences, and respectful of experience, even while examining and interpreting it. He is determined to sacrifice no portion of reality, and to give their due share to facts as well as to ideas, to science as well as to morals.

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From Kant again, and, in a smaller degree, from Hume and from A. Comte, is derived the philosophy of M. Renouvier. His *Essais de critique générale* marks an era in the history of French philosophy of the nineteenth century. Like A. Comte and several other vigorous thinkers of the time, M. Renouvier had received his training in the study of mathematical sciences at the École Polytechnique. These sciences, and also his convictions concerning social problems, induced M. Renouvier to study the philosophical questions on which all others depend. He could not be satisfied with the doctrines which were popular in his youth. We have heard how he condemned eclecticism with the utmost severity. He reproaches positivism with its empiric dogmatism which will not take the trouble even to justify itself, with its presumption in attempting to "organise science and religion," and to solve in a negative way the question of "possibilities which ought to be the prerogative of free belief." But he accepts this positivist principle, viz., that our knowledge pertains only to phenomena and the laws

of phenomena: a principle, moreover, in accordance with the results of the philosophy of Hume and Kant.

M. Renouvier gave to his doctrine the name of *Criticisme*. It manifests its Kantian origin, both in basing the solution of philosophical problems on a previous criticism of the human understanding, and in its way of stating the moral problem. But M. Renouvier radically modifies Kant's theory of knowledge. True, he also states that time and space are not realities in themselves, and that our thought operates by means of categories (of which M. Renouvier furthermore draws up a new list). True, he thence infers, again following Kant, that we know nothing but phenomena, and that in every cognition the part of the mind which knows is inseparable from that of the object which is known. But, beyond phenomena, Kant admitted a world of "pure objects" (*Dinge an sich*) inaccessible to our knowledge, and yet the foundation of the reality of phenomena. In these "pure objects," in these "noumena," M. Renouvier sees but a last remnant of the "substances" of the old metaphysics so aptly criticised by Hume and which Kant retained only at the cost of self-contradiction. In accord on this point with nearly all the neo-Kantians, M. Renouvier rejects these "pure objects" which Kant himself admitted to be absolutely unknowable. He holds that there is no reality but that given in consciousness.

For a while M. Renouvier inclined towards Hegelianism, and thought that, though to our finite understanding two contradictory propositions exclude each other, from an absolute point of view they may be reconciled or even support each other. But he soon assumed the contrary position and afterwards made it a rule to consider as false whatever he found incompatible with the supreme logical law of our thought, called the principle of contradiction; and he constructed the whole of his philosophy in accordance with the rigorous application of this rule.

For instance, he owed to it the solution of Kant's antinomies; or, rather, he showed that, had Kant observed this rule, he would not have formulated his antinomies. For one ought not to ask whether space is finite or infinite, whether the world had a begin-

ning or not. To say that space is infinite, or that the world had no beginning, is equivalent to admitting that an infinite number is possible and even real. Now, according to M. Renouvier, the realisation of infinite number is an absurdity, a contradiction in terms; therefore such a number does not exist, and therefore we *must* admit that space is not infinite, that the world had a beginning, that the ascending series of causes has a first term, and consequently that chance and liberty both have a place in the world of phenomena. Add to this the exclusion of the idea of substance,—which, if once tolerated in a system, leads inevitably to unity of substance, that is, to pantheism and fatalism,—and you have the elements of a system at once idealistic and phenomenalistic, which undertakes to establish, as conclusions of critical study, man's liberty and personality, an order in nature compatible with contingency, and the existence of an author (M. Renouvier for a long time said, of several authors) of the universe.

Does *Criticisme* then, after a long and toilsome circuit, simply come back to the theses of the old dogmatic metaphysics? It would be unfair to say so, though the differences are not so great as one would at first imagine. But the road followed by *Criticisme* is a new one, and M. Renouvier flattered himself with occupying a position that the old metaphysics had never reached. For want of having made a criticism of the human mind, for want of having acknowledged that we know phenomena only, for want of having understood that certitude is but a phase of belief and that liberty is implied in every affirmation, these "substantialistic" doctrines were inevitably condemned, by the internal logic of their own principles, to deny, in spite of themselves, man's liberty and the distinction between God and the world. Phenomenalistic *Criticisme* alone can be logical in affirming these things and in affirming them freely.

With M. Renouvier, even more decidedly than with Kant, the supreme interest is that of action, and therefore the centre of gravity of philosophy lies in morals. In man's conscience is to be found the only really fixed point, the only belief unassailed by doubt, the revelation of the absolute, on which, for us, all the rest depends, and which itself depends on nothing else. The ethics of

duty is admirably emphasised in M. Renouvier's works. It is the ever-present inspiration and the very soul and centre of his doctrine. It is this which has chiefly contributed to give it a firm hold on many of our contemporaries.

Social ethics is treated much more fully in M. Renouvier than in Kant, as might be expected from a former admirer of St. Simon and Fourier. But, while rightly recognising the fact of social interdependency and its consequences, he vigorously opposes the positivist theory of progress, and, in a general way, all philosophy of history which tends to fatalism. He regards the complete subordination of the individual to society as a baleful thing. His only hope for the future is from the free and deliberate efforts of the individual. His social ideal is above all one of justice.

After combating for a long time with passionate earnestness the philosophy officially taught in France, *Criticisme* at last made its way into that very official teaching. In more than one case it triumphed now over eclecticism, which was decidedly out of favor, and again over even the dogmatic idealistic systems. Many university professors in our days adhere to the philosophy of M. Renouvier and of his faithful disciples MM. Pillon and Dauriac. The summons had been given more than fifteen years ago by M. Brochard in his work entitled *De l'erreur*. *Criticisme* is clearly the form of Neo-Kantism which has been best acclimated in this country. Whatever may be the future of the system, it has at least manifested vigorous life, and effectually contributed to restore the unprejudiced study of philosophy in France.

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Opposed in many respects to M. Renouvier's philosophy, there arose another system, the success of which was no less considerable: the system of M. Fouillée, an extremely prolific writer, endowed with inventive imagination and wonderful dialectical resources, his style as easy as that of M. Renouvier is laborious. M. Fouillée has already presented to the public a long series of works, some historical, some dogmatic, and others critical and controversial, in which his doctrines have gradually taken shape. His first purpose seemed to be to substitute for eclecticism a philosoph-

ical synthesis at once very comprehensive and very consistent. Being remarkably well informed on the history of systems and quick at discovering how the constitutive principles of the chief ones among these may adapt themselves to one another, or cover or supplement one another, he sought a higher point of view whence he might survey all the systems he meant to reconcile. He had studied profoundly the modern philosophies of liberty, but he was no less indebted to the great systems of antiquity and particularly to the philosophy of Plato, which had been the subject of his first work. One may believe that he found a model for his own system in this broad theory of ideas, into which Plato could introduce all the essential parts of the chief Greek philosophies previous to his own without impairing its harmonious unity.

M. Fouillée acknowledges the advance made by the Kantian criticism over the former systems of metaphysics; but he does not hesitate to critisise the philosophy of Kant himself, and refuses to accept either his ethics or his theory of knowledge. The leading idea of his own system is the hypothesis of the *idées-forces*. On it he founded his psychology, his ethics, his general theory of nature and society, and lastly a doctrine of metaphysics based on experience.

An idea, according to him, is not a mere representation, that is, a sort of mental reproduction of a real or supposed object outside itself; an idea is at the same time a force, working for its own realisation. For instance, liberty is not a reality given objectively, of which we have an idea because we perceive it; but, on the contrary, it is because we have an idea of our own liberty, because we believe in it, because we adapt our conduct to this belief, that we are actually free, and that our freedom is effectual in the world of phenomena. Our ideas and feelings are conditions of real internal change, and consequently factors in mental evolution, not mere signs of an evolution wrought independently of them by exclusively physical causes. Furthermore, every internal change, being inseparable from an external change or motion, produces effects upon the external world, so that ideas, having acted inwardly, at the same time find outward expression with all the resulting conse-

quences. Thus the internal and the external efficacy of mental states are inseparable, because of the fundamental unity between the physical and the mental.

The idea is therefore inseparable from action, that is to say, from motion. "It is a form, not only of thought, but of volition; or rather, it is no longer a form, but an act, conscious of its own direction, quality, and intensity." This indissoluble union between thought and action is the all-important psychological law summed up in the term *idée-force*. Not that ideas intervene physically so as to interfere with the universal mechanism. This would represent the *idée-force* as an object endowed with a certain amount of persistent energy. Nothing is further from M. Fouillée's thought. He does not conceive ideas as being apart from one another and endowed each with its individual power. Every state of consciousness is the resultant of a prodigious number of actions and reactions between us and the exterior world, while its correlative is the sum of our cerebrations at any given moment.

From this conception M. Fouillée easily derives a criticism of the theories put forward by spiritualism and materialism on the relation between the soul and the body, then a criticism of the notions of soul and body themselves, and finally the elements of a general theory of the universe, in which, the world of motions being conceived as inseparable from the world of ideas, there is established a real monism, the monism of *idées-forces*, superior both to materialism and to idealism. It is easy to understand how the same principle is applicable to the philosophy of history and of law, and to the solution of sociological questions, which were always of special interest to M. Fouillée. In all these matters he can stand above the empiricist and rationalistic systems which indefinitely oppose each other without either of them ever gaining a decisive victory; he shows everywhere, to use Leibniz's expression, that they are right in their affirmations and wrong in their negations. His doctrine, in short, deals fairly with them all in criticising them all, and yet remains different from each of them even at the moment when he identifies it with some aspect of his own theory. This broad spirit of conciliation did not sap M. Fouillée's vigor,

and we need only read his *Critique des systèmes de morale contemporaines* to feel sure that the weak point of a system cannot easily escape him.

M. Fouillée's philosophy is certainly one of those which best represent the collective aspirations and intellectual needs of the present time. It contains every element of modern thought: the critical spirit which recognises no barriers and claims a right, despite the school of *Criticisme*, to test the very idea of duty; a tendency to adopt the historical and evolutionary point of view; respect for positive science; a taste for social problems; an effort to construct a positive psychology, and to found a science of metaphysics that shall sincerely take into account the modern theories of knowledge. The greatness and inherent interest of such an effort is evident to all eyes; time will show whether a reconciliation between opposite systems is not often achieved by M. Fouillée at the expense of the integrity of the system which effects the reconciliation, and whether the framework of his philosophy, the conception of the *idées-forces*, is strong enough to support the weight of such a comprehensive doctrine.

We must not separate M. Fouillée from his nephew Guyau, whose genius, prematurely lost to philosophy, he celebrated in touching terms. Guyau, who died at thirty-three, left works sufficiently complete to demonstrate clearly the originality of his mind. It was not his ambition to attempt a conception of the whole universe; he feared that a metaphysical system, of whatever sort, would always be lacking in stability. His efforts were especially directed towards the moral, æsthetic, social and religious problems which confront man's conscience in our times, the old solutions of which are seldom satisfactory to any conscience which is honest with itself. Guyau thought that a new solution might be sought in sociology. "Guyau's leading idea," said M. Fouillée, "is that of *life* as the principle common to art, ethics, and religion. According to him—and this is the generative conception of his whole system—life, rightly understood, involves, in its very intensity, a principle of natural expansion, fruitfulness, and generosity. From this he concluded that normal life naturally reconciles in it-

self the individual and the social point of view." By showing this social aspect of individual life, we might establish at the same time both art and morals on a basis which should henceforth be solid. And Guyau hopes for the creation, in the twentieth century, of a social science based on a scientific psychology, the first rudiments of which we behold in our own time. The influence of A. Comte is obvious here; it also appears elsewhere in Guyau's thought, for instance in his conception of the immortality of the soul. His works nevertheless bear a strongly marked individual character, due both to his passionate earnestness of thought and to the charm of his style.

* * *

Few doctrines in the period we are considering contain as many keen, deep, and original views as the works of Cournot. Yet his fame has not extended beyond a very limited circle. There was indeed nothing in his style capable of attracting the general public; yet more than one of those who attract the attention of the public have read Cournot and availed themselves of their reading. A prudent, methodical mind, well trained in the practice of the sciences, averse to all hasty generalisation, Cournot tried to determine what we may know of the foundations of our knowledge. Most philosophers have sought the solution of the problem in the analysis of our faculty of knowledge; Cournot followed another method. He carefully investigated each of the sciences which the human intellect has built up in order to gain a better knowledge of the universe and to exercise upon it practical influence; he analysed the principles on which these sciences depended for the establishment of their laws, and sought to discover whether it were possible by bringing together the principles and methods of the different sciences to obtain a group of fundamental ideas. This group will then constitute his philosophy.

Three ideas are of paramount importance in this doctrine, which shuns all *a priori* deductions and constitutes a system only in so far as experience warrants: these are the ideas of order, chance, and probability. Order exists in the universe. It is the regular recurrence of the series of phenomena that makes it pos-

sible for us to acquire a knowledge of their laws, and the faculty of putting the universal order into an intelligible form is what is called in us reason. But this order is not such that we can deduce the laws of phenomena by means of an abstract action of the mind. Induction is necessary to arrive at these laws, and induction does not convey absolute certitude, but only probability, which may be practically equivalent to certitude, but leaves room theoretically for contrary chances. For chance is not a word invented to conceal our ignorance, as has been claimed by philosophers; it is a positive factor in the sum total of reality; it comprises all that results from the concurrence of independent causes. Its part in history is undeniable; it is no less so in the evolution of our universe, which may be considered as a sort of history. But, whatever be the actual part played by chance, it is a fact that the various series of phenomena occur in a regular way, and that order exists. The conclusion we are to derive from this must not be more absolute than the principle itself; this order comprises possible irregularities and exceptions; outside the domain of mathematics, we must always make a principle of reserving a place for what may appear without our being able to foresee it. Therefore no science of real phenomena can claim absolute certitude, moral sciences less than any other, and philosophy still less than ethics. Philosophy is merely an attempt to connect what has been taught us by the study of different classes of phenomena, and to conceive order as universal. The controversies of philosophers show sufficiently that several conceptions of this kind are equally possible. Philosophy proceeds naturally from man's reflexion upon science; but it is not itself a science.

This doctrine, clearly akin to positivism and *Criticisme*, is nevertheless separate and distinct from them, and even emphasises some of their defects. It warns us against the too often rash affirmations and conjectures in which our reason indulges. But can a philosophy exist that dares not assert itself as a philosophy? May it not be to its extreme cautiousness that Cournot's doctrine owes the relative obscurity in which, despite its rare value, it has remained?

A philosophical doctrine can be but a great hypothesis: this may be a weakness, but it is also the only reason for its existence.

* * *

We are thus brought to the large category of thinkers who believed that such a hypothesis was henceforth impossible, and who gave up all attempts to seek for a total and absolute explanation of the universe. Therefore they abandon the pursuit of essences, causes, and ends. They are still philosophers, but have renounced the name of metaphysician. This positivistic tendency is found in the most various domains.

We must first mention men of science, such as the physiologist Claude Bernard, and the chemist M. Berthelot, who, while enriching science with valuable discoveries, have also reflected upon the nature and scope of science itself. Independently of his interesting observations on the experimental method in general, Claude Bernard has endeavored to determine exactly the object of physiological science, and his conclusions agree most strikingly with what Auguste Comte has said on biological philosophy. On the one hand, Claude Bernard disencumbers physiology from the last remnants of metaphysics which were still clinging to it. Science, here as elsewhere, seeks only to know phenomena and their laws. It has nothing to do with a so-called "vital principle" to "explain" those phenomena, which, considered singly, are never other than physical and chemical phenomena, which are identical in living and lifeless bodies. But, on the other hand, Claude Bernard does not mean to "reduce" physiology to physics and chemistry. He is fully aware that this would be equivalent, as Auguste Comte said, to explaining the superior by the inferior. He shows that life has something specific and irreducible to a physical and chemical mechanism. He emphasises the part played by the "dominating idea," which seems to preside over the evolution of the living being, and the necessity that the biologist who wishes to understand one phenomenon should connect it with all the others that take place at the same time, and even with those which shaped the past life of the creature. In short, Claude Bernard's chief object is to establish the positive character of physiology and its connexion with the

other and older positive sciences, yet without infringing upon its separate original and irreducible character.

M. Berthelot, being equally versed in chemistry and in the history of its beginnings, arrived also at general views not very different from those of the positive philosophy. He thinks that the progress of science will gradually make a theological and metaphysical attitude untenable. As minds become familiar with the knowledge of natural laws, they become incapable of harboring superstitions and arbitrary hypotheses. In this M. Berthelot shares the convictions and hopes of the philosophers and scientific men of the eighteenth century. He shows what great changes have already been wrought by the influence of the positive sciences; and yet nearly all of these sciences are just beginning their career, and their influence has only begun to triumph over violent and desperate opposition. What then may we not expect from the future, when these sciences shall hold undisputed sway, and shall have made discoveries beyond all our present dreams, which will probably transform both the conditions of social life and the traditional rules of morality? For the moral sciences are destined to become positive, after all others, it is true, but no less surely.

This last stage seems to have been attained by psychology in our days. M. Ribot, casting aside the semi-literary and semi-metaphysical psychology of the eclectic school, initiated the study of scientific psychology in France. He is not a positivist, inasmuch as he does not, like Comte, regard metaphysical investigations as useless and even injurious; he has written an excellent little book on Schopenhauer, and wishes to leave all questions open. But his conception of psychology is in perfect conformity with the positivist spirit. He defines it as a science of facts, the sole object of which is the search for the laws concerning these facts. The psychologist needs not choose between materialism and spiritualism, or decide whether it is the soul that acts upon the body or the body upon the soul: this is the business of the metaphysician.

The psychologist knows the facts from inward observation, and studies them according to the objective method. He does not regard psychical facts as constituting by themselves an order of real-

ities independent of all others; on the contrary, though careful not to say that facts of consciousness are but a phase of physiological facts (an unverifiable and metaphysical assertion which oversteps the limits of his science), he studies nevertheless, the facts of consciousness, as far as possible, only for the purpose of seeking for and establishing their association with the physical facts of the nervous system. Adding example to precept, M. Ribot has published a number of books in which the keenest psychologic faculty is combined with a strictly scientific method. In each of his works he endeavors to reduce some special laws to one general psychological law which shall furnish the reason for a great many facts. He holds that psychologic science leads to theories which are at least provisionally satisfactory, without being absolutely demonstrated, similar in this respect to the great hypotheses of physics. Following M. Ribot came a whole school of young psychologists who abstain from even such theories, and who apply all their energies to laboratory investigations of a very special and often minute nature. There remains nothing in common between psychology understood in this way and what the eclecticists or Scotchmen called by that name.

Sociology is far from having assumed such a decidedly positivist form. It still retains more than one of the features which according to Comte mark a science still in the metaphysical stage. Works on sociology are still chiefly devoted to defending the legitimacy, the object or the method of this science. Those who treat of it rarely take up the science at the point where their predecessors had left it; each of them contributes his own definition of social facts, upsets the edifice raised by the others, and goes about building a new one. There is nothing surprising in this state of sociology. Social phenomena being the most complex of all, sociology must necessarily be the last science to reach the positive stage,—and among the very numerous attempts made to organise it, some will certainly be made use of by the science of the future. Such are the works of MM. Espinas, Durkheim, and Tarde, to cite only a few names. M. Espinas comes first in order of date, with a fine study on *Les sociétés animales*. M. Durkheim, in his *Division du*

travail social and in his *Règles de la méthode sociologique*, endeavored to treat the facts of moral life after the method used in the positive sciences, that is, not only to observe them carefully, to describe and classify them, but to find out in what way they are capable of becoming objects of scientific study, and, to this end, to discover in them some objective element which will admit of exact determination, or, if possible, of measurement. If the definition of the "sociological fact" were sufficiently exact, the greatest difficulty would be overcome, and social science could then progress rapidly. Like other positive sciences, it would give man "foresight and power."

M. Tarde feels much less strongly than M. Durkheim the need of making sociological investigations rigorously scientific. He studies social phenomena now as a psychologist, now as a historian, and again as a philosopher; the comparative method, broadly and freely applied, being his favorite procedure. He has given us profound and thorough criticism of Italian theories of criminality, particularly those of Lombroso, and his own *Philosophie pénale* contains many views which are original, comprehensive, and often suggestive. The same thing may be said of his *Lois de l'imitation* and of most of his other works. Amid the sometimes crowded and rather desultory abundance of his ideas, there is found a considerable number of more systematic æsthetic and even metaphysical convictions, which now and then make themselves manifest, and give unity to the work.

We are very far from having given even a summary idea of the active contemporary philosophical movement in France. How many interesting works we are obliged to pass over in silence! Let us at least mention, in psychology, under its various forms: Fr. Paulhan (L'activité mentale, Les phénomènes affectifs, etc.), Egger (La parole intérieure), Pierre Janet (L'automatisme psychologique), Féré (Sensation et mouvement), Binet (La psychologie du raisonnement, L'année psychologique), H. Bergson (Essai sur les données immédiates de la conscience, Matière et mémoire); in metaphysics, MM. Evellin (De l'infini) and Rauh (Le fondement métaphysique de la morale); in logic, MM. Liard (Des dé-

finitions géométriques et des définitions empiriques, etc.), Brochard (De l'erreur, Les sceptiques grecs), Naville (La logique de l'hypothèse); in moral and religious philosophy, MM. Marion (La solidarité morale), Ollé-Laprune (La certitude morale, Le prix de la vie, etc.), and Sabatier (Essai d'une philosophie de la religion); in sociology, MM. de Roberty (La sociologie, Auguste Comte et Herbert Spencer, etc.), De Greef (Les lois sociologiques, Le transformisme social, etc.), Lacombe (Les lois de l'histoire), Henry Michel (L'idée de l'etat); in the philosophy of the sciences, MM. Delbœuf (Le sommeil et les rêves, La matière brute et la matière vivante), Hannequin (Essai sur l'hypothèse des atomes), Couturat (De l'infini mathématique); in esthetics, MM. Sully-Prudhomme (De l'expression dans les beaux arts), and Séailles (Essai sur le génie dans l'art); in the history of philosophy, MM. Adam (La philosophie en France au XIX^e^ siècle), Tannery (Pour l'histoire de la science hellène), Lyon (L'idéalisme en Angleterre, La philosophie de Hobbes), Delbos (Le problème moral dans la philosophie de Spinoza), Denis (Histoire des idées et des théories morales dans l'antiquité), and so many others whom we regret not having the space to mention.

The very number of all those we should have cited will be our excuse. True, this philosophical activity, of which the *Bibliothèque de philosophie contemporaine* gives so many tokens, seems at the same time to be quite desultory and fragmentary. But perhaps we overrate the diversity of the philosophical tendencies of the present time. Perhaps we are laboring under an optical illusion inevitable to those who try to take a general view of contemporary events. Probably many an important point of resemblance between doctrines escapes us, because the very spirit of our time, with which we are all imbued, is expressed in these resemblances, while, on the other hand, we take too much notice of secondary differences. The historian, in the next century, will discern the due proportions. He will at least recognise, in these diverse doctrines, a common effort to adapt traditional philosophy to the new conditions imposed upon it by the development of natural, historical, and social sciences.

PARIS, FRANCE. L. LÉVY-BRUHL.

LITERARY CORRESPONDENCE.

FRANCE.

THE work of M. P. J. DURAND (DE GROS), *Aperçus de taxinomie générale*, is of great importance. It is written in a lucid and lively style; it is full of information and also offers much food for thought. M. Durand (de Gros) does not flatter himself upon having completely exhausted the difficult question which he has attacked, but he has certainly shed a vivid light upon it, and he has formulated the problem more distinctly and more completely than has ever been done before, to my knowledge. If the readers of *The Monist* will permit me to resort for illustration to a rather crude artifice, they will perhaps be better able to grasp the character and natural concatenation of the various problems of classification treated in this work.

I shall ask them to suppose that they have given to them for classification a certain number of marbles, all of different diameters. Nothing is easier than to sort such a collection of marbles; it is sufficient simply to place them in a line, according to their size. If, on the other hand, the number of the marbles is unlimited, and several have the same diameter, the idea suggests itself of arranging them by sets, in such wise that a single marble shall represent and symbolise all the marbles of the same dimensions. If, now, the reader will consider in our marbles not only the diameter but also the color, two cases will be presented, according as those of the same diameter have the same color, or as these two attributes, instead of being exactly correlative, are unequally and accidentally distributed. Even in the first case the difficulty would arise of rec-

onciling classification by colors (superposition) with seriation by diameters (juxtaposition), and it would be necessary to divide our basal line into as many sections as there are colors, and to arrange our units in the order of dimension within each of the sections so obtained.

Next, imagine that the colors exhibit different shadings, that our marbles are composed of different materials, etc.; then, essay to represent to yourself mentally and to translate into graphic form, all the possible cases, and you will find that the following questions will be definitively forced upon your attention.

As was noted above, the necessity will be felt, in the first place, of classifying, not the objects themselves, but symbols, ideal specific units; and in the second place, of distinguishing two orders, one of juxtaposition and another of superposition. In the third place, a choice of distinguishing marks, or characters, is made necessary, which shall permit us to realise this new classification by superposition, or as I might say, by successive encasements; and when we discover finally, that such a character, according as it is more general and embraces a greater number of things, is at the same time exclusive of more particular characters which it has not considered, we shall have established (fourthly) the familiar principle of opposition between *generality* and *complexity*, which increase and decrease, each in the inverse ratio of the other.

When these points have been cleared up, we can assign to our marbles new attributes, either physical or chemical. We may even suppose that they are endowed with life, that they are individualities which have successively appeared in time, or have sprung one from another by filiation, etc., etc. But in the one case then, it will be necessary to classify the individuals themselves, and not their symbols, which places us in a different position from that last signalised; and in another it will become impossible to keep account of each one of all the characters of our analysis, for our marbles having become endowed with life will not cease to present chemical properties, to have dimensions, etc. There is no escape but that of assuming different points of view; and "perfect knowl-

edge" would suppose the agreement of all those points of view from which the things have been considered.

Such are the problems that M. Durand (de Gros) has attacked. He very correctly distinguishes four taxonomic orders: (1) The order of generalities, or of resemblances; (2) The order of composition, or of collectivity; (3) The order of hierarchy; (4) The order of genealogy and of evolution. We know the first two: the one of which, as the author expresses himself, is "essentially metaphysical, and based upon the relation of the genus to the species and of the species to the genus"; the other of which is absolutely "concrete, and based upon the relation of the whole to the part and of the part to the whole." Thus, the term *humanity* has the double signification: (1) of the *attribute* man, and (2) of the *collection* men. The third order is tantamount to saying that a country has its capital, a regiment its colonel, etc. The fourth embraces, in addition to the natural facts of filiation and development, the *historical* order: pure chronology, I should add, if considered in time only; interdependence and repercussions of social facts, if considered in space,—such is history, and I like to view it under the simile of concentric waves, indefinitely intersecting, which our afore-mentioned marbles have successively produced by falling upon the surface of a tranquil pond.

M. Durand (de Gros) enumerates the distinguishing characteristics of these four orders; then he compares them with one another, and shows that they are mutually opposite by pairs, the meaning being that in the orders of hierarchy and genealogy the objects themselves constitute the systematic aggregate of the classification, whilst in the orders of generality and composition we deal with symbols only. He seeks for the species of correlation capable of being established between these different points of view, and he likewise applies himself to what I regard as the important task of extricating the relation which unites the two series of superposition and juxtaposition; a problem which has hitherto been much neglected.

How,—is the question asked of botanists and zoölogists,—are varieties to be arranged within each species, the species within each

genus, the genera within each family, the families within each order, and so on? The character adapted to furnishing the series, be it of sections cut in each plane of superposition, or of units composing each section, can only be a character appertaining to all the objects to be classified, and differentiated in each of these objects. To which remark it is proper to add that the characters selected would not be the same for each plane or part of the plane of juxtaposition, unless we assume the theoretical case in which all the possible characters are strictly correlative, and can be arranged with reference to any one of them. Such would be the case where the diameter of our marbles, for example, involved the color, the material, etc. Such at least is what would seem to me to follow from a thorough criticism.

In the table of ethnical classification drawn up by M. Durand (de Gros) (where individuals are classed by cities, cities by provinces, etc.), might not the cities be classified, and consequently the provinces and states, according to their situation with regard to the same meridian, and the individuals in each city according to their size? Perhaps there might be some advantage in this, but the danger, which we shall immediately see, is that of resorting to characters which are more or less foreign to the precise object of the classification, and we should never have anything but a solution which was approximate in some cases and artificial in others.

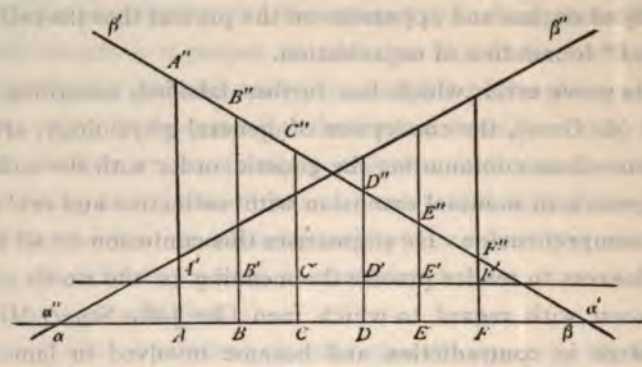
In the course of his acute analysis, illustrated by diagrammatic tables, in which the reasoning takes a concrete form, M. Durand (de Gros) discusses the work of prior classificators, and signalises in their productions many salient errors; such, for example, is the error which he has pilloried for forty years now, with all his great authority as a physiologist,—the error, which, as he states it, consists in reserving for histology the title of general anatomy on the ground that the cell is found in all tissues. This would be equivalent, he says, to identifying general pathology with the special science of diseases, the seat of which is the whole body; or general chemistry with the science of the "simple bodies"! To general anatomy should be assigned the study of the elements, tissues, systems, organs, apparatus, in so far as these terms partake of some-

thing general, that is to say, have something in common with the various correlative species; while to special anatomy belongs the individual consideration of each of these species, and of each of the different kinds of tissues, etc., and not, as is the opinion to-day, the study of organs and apparatus on the pretext that the cell is the "general" foundation of organisation.

This grave error, which has further falsified, according to M. Durand (de Gros), the conception of general physiology, arises in his opinion from confounding the generic order with the collective order, generic or nominal extension with collective and real extension or comprehension. He stigmatises this confusion on all hands, and endeavors to render precise the meaning of the words *abstract* and *general* with regard to which men like John Stuart Mill and Littré were in contradiction and became involved in lamentable errors. I ought to dwell on other very interesting discussions, as for example that relating to the establishment of the degrees of kinship in the genealogical order, but I have already gone into great detail in considering this work, and shall conclude with a few remarks on the "classification of the sciences," the necessity of which inevitably forces itself upon every philosophical mind.

Spencer, as is well known, attempted to correct the classification of Comte, but the classification which he proposed is based upon ideas which are often erroneous and contradictory. M. Durand (de Gros) criticises him for regarding the sciences as incapable of serial arrangement, so that their logical dependence, as well as their historical dependence, cannot be expressed by any order of succession whatever,—as though, when the series of abstract objects themselves formed a progression of increasing generality, the corresponding sciences ought not in their turn to form a succession. He critisises him further for refusing to subdivide each science into *general* and *special*, and for having failed to recognise that each science is alternately abstract or concrete, according to the point of view taken. But knowing well that so extended a question would require a whole volume, he restricts himself here to certain suggestive indications which I would advise the reader to seek out and ponder upon in the volume itself. Foolhardy as the attempt may

seem of attacking a question like this in a hurried manner, a classification of the sciences might, it seems to me, be figured, roughly and provisorily at least, in the following manner (see adjoining figure):



Let A, B, C, D, E, F be the series of sciences, the definition and arrangement of which I shall not discuss at present. $\alpha\beta$ will represent the order of evolution (the natural evolution of the facts and historical evolution according to Comte); $\alpha'\beta'$ the order of increasing generality; $\alpha''\beta''$ the order of increasing complexity. A', B', C', . . . denotes the concrete plane or stage. A'', B'', C'', . . . are the general sciences, the summit of the hierarchy. It would remain to sketch the interior distribution of each science. I have omitted to consider the applied sciences, or arts, in order not to overload this very simple diagram.

"This book," writes M. Durand (de Gros) in his epilogue, "is merely a succession of *aperçus* over a vast and almost virginal domain. . . . All that I have attempted to do is to raise into relief some of the principal points of this *terra ignota* of science, in order to enable future explorers to direct their footsteps with more certainty." The eminent author has succeeded in this enterprise as much as he could have hoped, and his beautiful work will I trust recall attention to studies which have been greatly neglected by recent schools.

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There is little space left for speaking of the last work of M. D. MERCIER of the Catholic University of Louvain, entitled *Les origines*

de la psychologie contemporaine. I remark with surprise that in a book bearing this title the name of M. Ribot is not mentioned a single time. M. Mercier has selected as the modern representative of English psychology, Spencer, of French psychology, Fouillée, and of German psychology, Wundt; and this selection alone is sufficient proof that his object has been to criticise the philosophical status of the psychological problem, rather than to discuss the positive acquisitions of psychology. This criticism, I should state at once, is well conducted; it has seemed to me instructive and impartial, and I think that its perusal will not be unprofitable, even if one does not accept the Neo-Thomistic doctrine expounded in the first chapter of the work.

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There is still to be mentioned the work of M. L'Abbé C. Piat, *Destinée de l'homme*, a work in which the author distinctly declares himself the champion of philosophical spiritualism and of the belief in a future life. M. l'Abbé Piat has eloquence, erudition, and ingenuity; and yet I doubt if he will succeed in gaining the conviction of critical readers, although he will certainly have diverted their thought into fruitful paths. True, our systems are only insufficient modes of viewing things; and no sooner have we adjusted our telescopes than some cloud intervenes to obscure our vision. But that is the predicament of spiritualism as well as of positivism and idealism; and it would be a great miracle indeed if men should not accept at once, if they were decisive, the proofs of their future existence, which is the thing perhaps to which their desires are most strongly attached.

* * *

From M. Ernest Naville we have the second edition of his work on free will, *Le libre arbitre*, the merit of which I am glad to recognise, and which can properly be consulted on this insoluble question (insoluble because it involves, in my opinion, incommensurable terms),—one of those questions which, as Macaulay said in his essay on Bacon, "have caused philosophers labors comparable to those of the souls of the damned in the Grecian Tartarus."

I have been guilty of a grave omission in not mentioning and analysing, as I should have done, the important work of M. PAUL JANET, *Principes de métaphysique et de psychologie.*[1] I have great admiration for the distinguished qualities of M. Janet, his knowledge and his character, and I have no prejudice against the spiritualistic doctrine of which he is the champion; but he will pardon me for not accepting either the definition which he gives of philosophy, or his conception of psychology, which already prejudge that doctrine. The analytic method pursued by him in defining philosophy leads him to present in his definition the equivalent of his own philosophy; while at the same time psychology is made the instrument of that philosophy. There are other divergencies to be noted, but I prefer to refrain from discussing them at present, and would refer the reader either to the work itself or to the exhaustive study of it which M. Bergson has given in the *Revue philosophique* for December, 1897.

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From M. P. LACOMBE we have an excellent work, *Introduction à l'histoire littéraire,*[2] written by a cultured man of letters and a good psychologist. M. Lacombe agrees with the majority of authors in holding that art is a species of play; he remarks in addition, and quite correctly, that artistic imitation, when it enables us to evoke at will and to repeat indefinitely the emotion which we sought in play, is also maintained by the excitation of our self-love, and he shows the important rôle of self-love and of vanity in the sentiment which impels the artist to create and to realise the dreams of his imagination.

As to the conditions of a scientific literary history, M. Lacombe differs almost entirely from Taine; he rejects the doctrine of the "literary race," an idea which of all is false, and which led Taine to misunderstand the human substratum, the permanent psychological foundation, which is only partly modifiable by environment and circumstances. With some reservation as to so sweeping a

[1] Paris: Delagrave. 1897. The other works are published by F. Alcan.

[2] Hachette, publisher. 1898.

condemnation of the ethnical factor, I should express this by saying that the race is at the bottom of the individual, and the man at the bottom of the race.

An exposition of the conditions of literary history; the psychology of the artist and his public; the study of literature viewed from the point of view of its evolution, its environment, its forms, and its social rôle; the psychology of style: such are the subjects treated in this work, and treated with tact and common sense. M. Bergson has restricted himself to considering French literature, so as to give more precision to his demonstrations. We cannot take it amiss if he has done so, especially as he arrives at results (and this is the essential point) which are applicable to all literature.

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From M. EDMOND THIAUDIÈRE, finally, we have a little volume of thoughts bearing the title, *L'Obsession du divin.*[1] I have previously spoken here of the last volume of this author, *La soif de juste*, which has since received the acknowledgment of the French Academy. M. Thiaudière is not a professional philosopher, but he is an acute moralist, high-minded and large-hearted, with whom intellectual companionship is extremely pleasurable.

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I had almost forgotten *L'Éducation des sentiments*[2] by M. FÉLIX THOMAS, a work to which I recommend the attention of educationists and also of psychologists. M. Thomas has set himself the task of deducing from pure psychology practical hints for the education of children, and he is to be felicitated upon his undertaking, even though one may have doubts as to the actual efficacy of books of this character. The advancement of the species is effected on a thousand recondite paths, and we ought not to bar progress on any one of them.

LUCIEN ARRÉAT.

PARIS.

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[1] Fischbacher, publisher. 1898.

[2] F. Alcan, publisher.

BOOK REVIEWS.

ZOROASTER, THE PROPHET OF ANCIENT IRAN. By *A. V. Williams Jackson*. New York: The Macmillan Company. London: Macmillan & Co., Ltd. 1899. Pages, 312.

Non-Christian religions possess for Christians an interest that stands in direct proportion to similarity of doctrine and the possible influence they may have had in building up Christianity. The main interest of comparative religion has so far been concentrated upon the relation of Buddhism to Christianity to the neglect of Mazdaism, and yet the latter is probably far more intimately related to Christianity and exhibits a number of striking and close resemblances which, it would appear, cannot be purely accidental. We are not over rich in authoritative statements of the religion of Zoroaster and have been anxiously waiting for a good work that would offer to the English-speaking world a summary statement of the main facts derived at first hand from the original sources. Prof. A. V. Williams Jackson's book fills this want, and yet such is the immensity of the material that it is a beginning only, which we may consider as the promise of a more complete work. It is impossible to cover the whole field in one volume, and Professor Jackson's book treats of Zoroaster and his life only, not of Mazdaism. It does not therefore touch upon any one of the problems that will render this noble religion of the struggle of the good against the powers of darkness so exceptionally interesting to us. There is scarcely any reference to the influence that Mazdaism may have exercised either upon Judaism[1] or Christianity[2]; the book is limited to a critical review of the material that is at our command concerning the life and death, the personal experiences, family

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1 We have, for instance, positive evidence in the Septuagint that the holy fire in the house of the Lord was kept up not only under the protection but even at the express command of the Persian kings. The eternal lamps that are still burning in many of the Christian churches and are never missing in Roman Catholic churches, can directly be traced to Mazdaistic forms of worship and are a living evidence of the great influence of Zoroaster over the religious evolution of the whole of civilised mankind.

2 The most surprising similarities in doctrine have been presented by Professor Jackson in a lecture which he delivered a few years ago at the convocation meeting of the University of Chicago; viz., the coming of the kingdom, the arrival of the virgin-born Saviour, the bodily resurrection of the dead, the judgment at the end of the world and its final restoration under the government of the Saviour.

relations, the aspirations, rebuffs, and successes of the great Iranian teacher, the Prophet of the Lord Omniscient Ahura Mazda.

As to the date of Zoroaster's birth Professor Jackson accepts the established tradition, viz., 258 years before the rise of Alexander's dominion, or 272 years before his death, which, considering all in all, assigns Zoroaster to the years 660–583 B. C. His native place must be sought in the west of Iran, in the district of Atropatene, to the west of Media in the neighborhood of Lake Urumiah, a region of naphtha wells and oil fountains. The field of his main activity, however, lay in the East or Northeast of Iran, where we must look for the site of the kingdom of Vishtāspa (the Iranian Constantine, corresponding to the Buddhist Bimbisara).

Zoroaster's family name "Spitāma" is a patronym derived from a word that means "white" and may accordingly be translated "Whiting." The meaning of the name Zarathushtra to a European ear is very prosaic, for *ushtra* means "camel" and *zar* may mean "old" or "fierce." Thus the word meant either "the old camel" or "fierce camel," or "the one who torments or robs camels."

Professor Jackson calls Zoroaster a Magian, accepting the word in the sense in which Herodotus uses it, as "a Median tribe"; and makes no comment on the significance of the word in the sense of priest. It almost appears that he regards the derivation of this Persian name from the Akkadian *Imga* and the Assyrian *Maga* i. e., priest, as improbable and not worthy of consideration.

Zoroaster's cousin, Maidhyoi-māonha, was the most zealous disciple of the new religion, the St. John of the Zoroastrians. Professor Jackson adds, "He is a very different character from Buddha's traitorous and shismatic cousin Devadatta;" but why is he not compared to Buddha's other cousin, Ananda, who is the Buddhist St. John, whose name even resembles the Latin pronunciation "Johannes"?

There are sufficient evidences of a religious fermentation which preceded the era of Zoroaster and we have good reasons to believe that his doctrine is the product of a long evolution. Professor Jackson sums up the result of his investigations as follows:

"Born in the fulness of time, he appears as a prophet in the latter half of the "seventh century before the Christian era, and the period of his activity falls be- "tween the closing years of Median rule and the rising wave of Persian power. "He himself stands as the oldest type and representative of what we may call, in "the language of the Bible, the laws of the Medes and Persians. His teaching had "already taken deep root in the soil of Iran when the Jews were carried up into "captivity in Babylon and had learned of that law which altereth not, or before a "Daniel came to interpret the ominous hand-writing on the wall which the sooth- "sayers failed to read. Zoroaster is the contemporary of Thales, of Solon, or of "the Seven Sages of classical antiquity. He is the forerunner of Confucius, the "philosopher who was to arise to expound to China the tenets of her people's faith. "By him is sounded in Iran the trumpet-call that afterwards echoes with a varied "note in India when the gentle Buddha comes forth to preach to thirsting souls

"the doctrine of redemption through renunciation. Zoroaster, finally, is the fa-
"ther, the holy prototype, of those Wise Men from the East who came and bowed
"before the new-born Light of the World in the manger-cradle at Bethlehem."

Buddha and Zoroaster are compared as follows:

"Both these prophets were filled with a spiritual zeal for relieving a people
"and ameliorating their condition; both of them were inspired with a righteous
"hope of bettering their peoples' lives and of redeeming them from misery and sin;
"and both men became founders of religious faiths. The end and aim in both
"cases was in general alike; but the nature of the two minds and of the creeds
"that were developed shows some marked and characteristic, if not radical, differ-
"ences. The faith of Buddha is the more philosophical; the faith of Zoroaster
"the more theological. Buddha's doctrine is a creed rather of renunciation, quiet-
"ism, and repose; Zoroaster's creed is a law of struggle, action, and reform. In-
"dia's so-called Prophet Prince is overwhelmed with the wretchedness of human
"existence, an existence from which the sole release is absorption into Nirvāna;
"Persia's Sage is equally cognisant of the existence of woe, but it is no world-woe
"without hope of triumphant domination. The misery which Zoroaster acknowl-
"edges to exist is due to an Evil Principle against whom man must struggle all his
"life and fight the good fight which will bring final victory and will win joys eternal
"at the resurrection. Nevertheless, as a faith in reality, Buddha's belief had in it
"more of the elements of a universal religion; Zoroaster's faith, as Geldner has
"said, possessed rather the elements of a national religion. Millions of human
"souls still take refuge in Buddha; the faithful followers that bear the name of
"Zoroaster to-day do not number a hundred thousand. In making such a com-
"parison, however, with regard to the relative proportion between the two faiths
"in the matter of present adherents we must not forget that national events and
"external changes in the world's history have contributed as much to this apparent
"disproportion as any inherent and essential difference between the nature of the
"two creeds has done."

The book is very conveniently divided into two parts, the text and the Appendices. The former comprehend all the material that will prove interesting to the general reader, but the latter are of greater importance to the scholar. They contain the justification of the opinions offered in the text of Professor Jackson's work, which are seven essays on (1) the name of Zoroaster; (2) the dates of his life; (3) the chronological tables of Zoroastrian history; (4) the geography of Zoroaster's birthplace and the scene of his ministry, greatly assisted by a large and excellent folding map of Iran; (5) a collection of Greek and Latin passages in which Zoroaster's name is mentioned; supplemented (6) by allusions found in Armenian, Chinese, Syriac, Arabic, and Icelandic literature; and finally a critical inquisition into the traditional images of Zoroaster, especially the picture in the fire-temple and Yezd and the Takht-i Bostān Sculpture.

The Takht-i Bostān sculpture which we reproduce here, is the last one in a

series of six historical bas-reliefs in the valley of Takht-i Bostān, not far distant from Behistān near the city of Kermānshāh. Professor Jackson says: "The figure "would answer well to the glorified image, with 'dazzling wand' and 'lustrous "glory' around the head, which is the guise under which the Zoroastrian writer of "the Zartusht Nāmah, in the thirteenth century, describes the vision of the Proph-"et's appearance."

The following extracts from Professor Jackson's book show the diversity of opinion as to the identification of the various figures:

"Sir R. K. Porter (p. 191) regards the figure on the extreme left (or to the "right as we face the picture) as the god Ormazd presenting the ring or emblem of "sovereignty to Ardashîr Bābagān, who stands in the centre of the group, 'and

THE TAKHT-I BOSTAN SCULPTURE. [By permission of the publishers.]

"both are trampling upon a similar royally-habited figure symbolical of the fallen "Arsacidæ.' Of the fourth or remaining figure, the one in which we are particu-"larly interested, Sir Ker Porter says (p. 192): 'The personage to the right of the "centre figure [or to the left as we face the group] is of rather a singular appear-"ance. His head is protected by a similar kind of cap, but without the ball, and "with the extraordinary addition of a circle of rays blazing round his head and "down to below his shoulders. He holds in both hands a fluted staff, or sceptre, "of great length. The rest of his vesture nearly resembles that of the murally "crowned figure. He stands upon a plant, not unlike a sunflower, the stalk of "which is short and thick, and curved down into a lower part of the rock. The "prostrate person is greatly mutilated; but his pearl-wreath, collar, and sword

"show that his consequence was not inferior to the two who trample on him. . . .
"The radiated personage [the one under discussion] may either be a personifica-
"tion of the Mithratic religion restored by him [i. e., by Ardashîr, the central fig-
"ure]; which the sunbeams round the head and the flull-blown flower rising under
"their influence at his feet, seem to typify; or the figure may be meant for the
"glorified Zoroaster himself; some Persian writers ascribing to him the reflected
"honor of that god-like attribute. The altar-platform near this bas-relief, and
"also the source of the river (two sacred Mithratic appendages), support the idea
"that this sculpture contains more than human images.'

"Sir John Malcolm, *History of Persia*, new edition, London, 1829, speaks of
"the two figures with the circle or ring as 'two sovereigns upon a prostrate Ro
"man soldier;' and he adds: 'A figure supposed to be the prophet Zoroaster stands
"by their side; his feet rest upon a star, and his head is covered with a glory or
"crown of rays.' And he adds in a foot-note, vol. i. p. 545 (cf. earlier edition i,
"258): 'I am informed by the Parsees, or Guebres, that in almost all the paintings
"or sculptures that represent Zoroaster he is always distinguished by a crown of
"rays, or glory.' This shows, at least, the prevalence of a tradition that represen-
"tations of Zoroaster were thought to be not uncommon, whatever we may think
"on the subject.

"Edward Thomas, *Sassanian Inscriptions*, in the *Journ. of the Royal Asi-
"atic Society of Gr. Brit. and Ireland*, new series, vol. iii. p. 267, n. 3, London,
"1868 . . . argues that the figure with the rays and staff represents the god Or-
"mazd. . . . As for the rays, he adds in a note that a similar form is given to Or-
"mazd's headgear in a coin of Hormisdas II. The other two figures in our group
"he regards, as do others, to be the representation of Ardashîr presenting the
"crown of Iran to his son Shâpûr. Canon George Rawlinson agrees with Thomas.

"The Parsi scholar, Kawasjee Dinshah Kiash, who visited Takht-i Bostân in
"1878 and sketched the group, gives, in his serviceable book (*The Ancient Persian
"Sculptures*, p. 212), an interesting tradition regarding this bas-relief, saying:
"'Owing to the deficiency in the inscription, tradition says: "The first figure with
"the club is that of the Prophet Zoroaster, the second is that of Gustasp, the fifth
"king of the Kayanian dynasty, the third is that of his son, the mighty Asphandiar
"[Isfendîâr], who had established the Zoroastrian religion through the whole of
"Persia, and the last is that of Arjasp [viz., the foe of the faith], the grandson of
"Afrasiab of Tooran, or Tartary. The circlet shows that the whole world is in
"their possession."'

"The evidence on the subject of this particular sculpture, as we look it over,
"seems to be about evenly balanced. Tradition apparently favors the identifica-
"tion of the effigy with Zoroaster; the more technical scholarly opinion of recent
"times, on the other hand, seems rather to regard the figure as a representation of
"Ormazd." P. C.

DIE GRIECHISCHEN CHRISTLICHEN SCHRIFTSTELLER DER ERSTEN DREI JAHRHUNDERTE. Herausgegeben von der Kirchenväter-Commission der Königl. Preussischen Akademie der Wissenschaften. (1) *Hippolytus.* Vol. I.: Part I., pp. 374+xxviii; Part II., pp. 309+x. Price, bound, M. 20.50. (2) *Origenes.* Vol. I., pp. 374+xcii. Vol. II., pp. 545. Price of both volumes bound, M. 33. Leipsic: J. C. Hinrichs'sche Buchhandlung. 1897–1899.

We hail the appearance of the first volume of a new and great undertaking which has been made possible by a donation called the Wentzel-Stiftung, founded by Mr. Hermann Wentzel and his wife, Elise, née Heckman. It is devoted to the publication of critical text-editions, with German translations, of the Christian authors of the first three centuries who wrote in Greek, including the apocalyptica, Gospels and the late Jewish writings which have been adopted or somehow recognised by the early Christians, the various apocalypses, sibyls, etc. The New Testament itself is excluded, having already received so much attention as not to be in need of new text-editions or translations. The publisher is J. C. Hinrichs, of Leipsic, a house well known for its enterprise, especially in the line of theological literature. As for the editors, the assistance of the most prominent scholars has been gained, viz., Diels, Gebhardt, Harnack, Loofs, and Mommsen. The much-lamented Dillmann, who died not long ago, appears also as one of the Commission.

Considering the importance of the Christian writings of this period, and the light which a better knowledge of them will throw on the origin of Christianity and the formation of the Catholic Church, the new enterprise must be regarded as of special importance, and will no doubt be accompanied by good results. We cannot expect that the public will support a work which requires so much detail labor, and is practically material only for research. Thus the circle of readers is limited to scholars. A perusal of the patristic literature of this age is upon the whole neither satisfactory nor pleasant. The taste and the religious views have changed so much that the piety of the church fathers is sometimes even repulsive to modern Christians; and the interest is mainly historical and scientific. Yet the problems at stake are by no means irrelevant; they will in the end be of absorbing interest, not only to the theologian in his studies, but to the large masses of Christendom who are anxious to understand the rise of their faith and the history of its evolution. While, therefore, the enterprise will naturally be of great consequence, we cannot expect that considered as a business undertaking it will be very lucrative.

The first volume of the series begins with Hippolytus, one of the most prolific of writers, who lived at the end of the second and the beginning of the third century. He was not a Catholic bishop. He wrote in Greek, and he may have received a large part of his theological education in the East. We have, nevertheless, no reason to doubt the correctness of the historical data we have of him: that he lived at Rome, or rather, in Portus, opposite Ostia, and was banished in the time of Alexander Severus, in the year 235, together with the Roman bishop Pontianus, to Sardinia, where it is supposed he died. A marble statue of him—a work of uncertain

date, but not later than the fifth century—was dug up in Rome, in 1551, and is now preserved in the Vatican. He is represented as seated upon an episcopal throne, wearing the Greek pallium, over which the Roman toga is thrown. On the reverse side of the statue is given an incomplete list of his numerous works.

The first volume of our collection contains Hippolytus's commentary on the Book of Daniel and the Song of Songs, edited and translated into German by Prof. G. Nathanael Bonwetsch, of Göttingen. They are a first edition, and possess therefore especial interest to theologians, which is increased by the fact that the Book of Daniel was the leaven in the dough which started the fermentation of the period of preparation which preceded the origin of Christianity. The Book of Daniel was therefore naturally the most interesting book of the Old Testament to the early Christians, and the commentaries of the Church Fathers on its prophetic visions reflect more than any other writings the early Christian conception of the Old Testament. The commentary on the Song of Songs is of interest because we have now positive evidence of the influence which Hippolytus exercised on Cyril of Alexandria, and on other later Christian writers, among them Gregory the Great.

The second part of the first volume is an edition of the smaller exegetic and homiletic writings of Hippolytus, edited and translated by Hans Achelis, a privatedocent of Göttingen. They are of less importance, but contain much detail material, most of which is new.

We miss in the introductory remarks both by Bonwetsch and Achelis, references to Hippolytus's work on the *Refutation of Heresies*, which was discovered on Mt. Athos, in 1842, as an anonymous MS., by Minoides Mynas, a learned Greek who had been commissioned by the French government to search for such treasures. An English translation of this important work which is one of the most important sources concerning the heresies of the early Christians, by the Rev. S. D. F. Salmond, has been embodied in the "Ante-Nicene Christian Library" (Edinburgh, 1868–1869). The relation of the commentaries of Daniel and the other writings of Hippolytus to his comprehensive work on Christian Heresies, and a corroboration or refutation of its genuineness, appears to be of too much importance to be dismissed without mention.

The edition of the text is, as was to be expected of the editors, excellent; the type and paper leave nothing to be desired; the introductory remarks are concise, perhaps too concise, and might have been more complete. The book would unquestionably have gained in usefulness if the authors had been more explicit as to the importance of Hippolytus and his works. We hope that later volumes which will probably contain further writings of the same author will embody a serviceable index, which is missing in the first volume.

While reading the proofs of the present review, we are in receipt of two more volumes published by the Wentzel-Stiftung and comprising two stout volumes of Origen, containing the Greek of his book on *Martyrdom* and that of the eight books against Celsus, edited by Professor Koetschau. Even a superficial examina-

tion (for we have not yet found leisure to do justice to the work) shows that the text-revision is carefully made. The introduction of eighty-four pages gives to the reader all the necessary information of this most prominent church father. On account of the importance of the books of Origen, we hope to give a further analysis of Professor Koetschau's edition. P. C.

ZOROASTRIANISM IN THE LIGHT OF THEOSOPHY. Being a Collection of Selected Articles from the Theosophical Literature. Compiled by *Nasarvanji F. Bilimoria*. Pp., 362+xxiv. Bombay: "Blavatsky Lodge," Theosophical Society. Madras: Headquarters, Theosophical Society, Adyar. London Agents: The Theosophical Publishing Society, 26 Charing Cross, S. W.

The articles collected in this volume possess different values, and while they are full of vague ideas, as is usually the case with theosophical literature, they also contain suggestive thoughts, which will prove valuable hints to students of Zoroastrianism. The chief editor, Mr. Nasarvanji F. Bilimoria, is one of the most important contributors, and his articles touch upon the most important points, such as the "sacred haoma tree." Other writers represented are H. S. Olcott, Kharsedji N. Seervai, N. D. Khandalvala, B. E. Unwala, Walter R. Old, Baker Hudson, and Alexander Wilder. The articles are entitled: "The Spirit of the Zoroastrian Religion," "The Septenary Nature of Man," "The Sun as a Symbol of Ahura-Mazda," "Philosophy and Ethics of Zoroaster," "Sun-worship and Fire-worship," "Transmigration in the Avesta," "The Ceremonies," etc., etc. A great number of the contributors being Parsis, the book may fairly be considered a sign of the interest which they take in their venerable religion. The influence of Madame Blavatsky and Mrs. Besant upon the style of reasoning is apparent; but the general spirit of the book is praiseworthy, and we cannot do better than to repeat the following lines of Prof. W. M. Flinders Petrie, in a letter to the secretary of the Parsi Panchâyet, Bombay: "I need hardly say how gladly I should do anything I could to forward research in the Irânian regions; and what satisfaction it is to see the able descendants of so noble a race turning their attention to research in their history and origins." P. C.

VORLESUNGEN ÜBER DIE PRINCIPE DER MECHANIK. Von *Ludwig Boltzmann*. Erster Theil. Mit sechszehn Figuren. Leipsic: J. A. Barth. 1897. Pp., 241. Price, 6 M.

Professor Boltzmann, the versatile and indefatigable occupant of the chair of theoretical physics in the University of Vienna, has been hovering of late years with peculiar predilection over the problems that unite, or rather separate, physics from philosophy, and his views, both from their outspokenness and their intrinsic fitness, deserve consideration. Two scientific thinkers seem to have furnished the greater part of the stimulus to his reflexions—Hertz and Mach—and in express or tacit reference to these men he has developed his views.

Hertz in particular he treats with loving kindness. The expositions in the Introduction to the latter's *Mechanics* seem to have made a profound impression upon him; their beautiful and clear-cut language, which reminds us of the lucid style of David Hume or of D'Alembert, and preserves all the traditions of the eighteenth century, have given to Hertz's ideas a precision and faultlessness of form which ensure their retention by all who have ever lent themselves to their influence. These ideas would undoubtedly be denominated "superficial" by the analytical psychologist, and by the ponderous ontological philosopher, who estimates the value of a system by its unintelligibility; and it must be admitted that they do smack of the art of the *littérateur*. But they are clear, and that is half their victory. It is therefore clearly intelligible that Professor Boltzmann's views should throughout be saturated with Hertz's phraseology. The influence of Mach has been more subtle, but the undercurrent is plainly perceptible. The notions of mental adaptation, of the rôle of comparison in science, etc., not to speak of technical contributions proper, play a considerable part in the development.

We are concerned, in this notice, with Professor Boltzmann's views of the theory of scientific explanation only and not with his system of mechanics; he has developed these views partly in the introductory sections of the present work, and partly in his essay *On the Methods of Theoretical Physics* in Dyck's catalogue of the Nüremberg-Munich Exposition of Mathematical and Physical Models. We shall make use of both sources in our remarks.

The discussion largely centers about Kirchhoff's definition of mechanics, in which the term "description" figures; and, since the far-reaching implications of that term and of its correlative "comparison" are not generally and exactly understood, we shall first give a brief exposition of their meaning, making this exposition the burden of our remarks.

Bare description does not necessarily constitute the essence of science. When Kirchhoff said, to the horror of most contemporaneous physicists, that it was the object of mechanics to *describe* in the simplest and completest possible manner the motions occurring in nature, he demonstrably did not mean that the essence of mechanics was a statistical word-for-fact tabulation of the motions of the universe; if he had, the *Mécanique Analytique* of Lagrange might have been written by a Patagonian savage. He merely aimed at a restoration of the Newtonian ideal of science, which had been intimated before him by D'Alembert, and had been stated contemporaneously with him by Mach. That ideal was, in stating the facts to state *only* the facts, or relations of facts, involved, and not to state purely superfluous matter and creations of the imagination, or even analogies, not involved. It was description of actualities as opposed to description of fictions. *Hypotheses non fingo*, said Newton; "I make no hypotheses." I state only what is necessary and sufficient to *describe* what gravitation is, what moving force is; I supply no supererogatory speculation as to what are their occult causes. The real aim of Newton and Kirchhoff, thus, was the ousting of metaphysics from science.

But there is another feature involved that is not usually considered. The law of the inverse squares, for example, *is* a description of the motions of the heavenly bodies, but it stands on an entirely different plane from the description of a topographical chart of the State of Illinois. The ultimate object in *building up* the science of mechanics is *to afford the means* for rapidly and completely describing the motions of nature; the formulæ of mechanics *potentially* involve the description, but in themselves they are more than the description. The elements of form economy, and necessity are very insufficiently emphasised here.

And now as to comparison. There is a deep significance in the remark which Agassiz is said to have made to the unsuccessful naturalists of America in his day: "You are too much *déscriptif*, too little *comparatif*." The element of comparison is at the basis of all scientific explanation; and scientific description, understood in its highest as well as in its lowest sense, always proceeds by comparison. When the savage saw a spirit in the magnet; when Newton likened the falling of the moon to the earth, to the phenomenon of the falling of a stone to the ground; when Pascal repeated with mercury in water the experiments which nature was daily making in the atmospheric ocean around him; when electrified bodies were conceived to be freighted with fluids which attracted and repelled each other; when the development of the fœtus was conceived as a repetition of the development of the race; in each case people regarded these phenomena as explained. For unfamiliar events familiar events were substituted, which the imagination readily followed.[1] The analogy at the basis of the explanation will vary from the crudest and wildest of resemblances, to such exact comparisons as the undulatory theory of light and electricity. But it is at bottom always comparison. The terminology of colors and numbers even was originally based on comparison. But when colors and numbers acquired significance independently of any definite objects and any definite connexion, they were raised to the abstract plane; and explanations which involve such elements are called *direct descriptions*, on the ground of the fact that the comparisons involved in them have been shorn of all concreteness and etherialised to the point of suggesting no obscuring connotations whatever. The notion of mathematical function itself has passed through this process; it was geometrical with Leibnitz; algebraical with John Bernoulli; and has become a general and almost purely logical concept with recent thinkers.

And so we may conceive the very instruments of mathematics itself as analogies and models, only of an ultimate and highly abstract order; *quantitatively, the course of nature runs as the course of certain functions, or mathematical models, runs;* and we thus bring under one conception the whole theory of scientific explanation. *Direct* description by absolute abstract analogy is the ideal;

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[1] See *The Open Court*, Vol. IX. p. 4450, "An Episode in the History of Philosophy," for the views of Adam Smith on this subject; and for a full exposition, cf. Mach's *Popular Scientific Lectures*, 3rd edition, Chicago, p. 236.

indirect, by more or less crude analogy, is most commonly the practice. (Terminology of Mach.) The former has been best exemplified in Galileo, Newton, Lagrange, and Kirchhoff; the latter in Faraday, Maxwell, and Lord Kelvin, who spoke in parables, dealt with so-called mechanical analogies and models and dynamical illustrations, and expressly disclaimed the reality of their fictions, but revealed withal a magnificent expanse of truth. Can this be said to be a reaction?

Professor Boltzmann, who distinctly mentions this development, seems to think so. But the reaction will, in our opinion, be found to be only apparent. The famous model from which Maxwell is said to have derived the equations that so touched the imagination of Hertz was itself the incorporation, or at least the suggestion, of those equations; and only in so far as it actually agreed in a formal aspect with reality was it of value to Maxwell. The *model* constituted the real discovery of Maxwell; if he had not hit upon the right model, he would not have hit upon the right equations; ultimately the crude model was abandoned and the equations alone substituted for reality.[1] A very rough diagram is a great help in solving a problem in geometry; but the roughness of the diagram is not the gist of the solution; the diagram merely helps to carry the thought and suggest the true relations; only in so far as the rough diagram contains the true relations is it essential to the result.

And so it was with the mechanical models and dynamical illustrations of Maxwell. "I have used them," says Maxwell, "to assist the imagination, not to account for the phenomena." And again, "The author of this method (referring to Lord Kelvin's 'Mechanical Representation of Electric, Magnetic, and Galvanic Forces') does not attempt to explain the origin of the observed forces by effects due to these strains in the elastic solid, but makes use of the mathematical analogies of the two problems *to assist the imagination* in the study of both."

We see, accordingly, that "description" in science involves (1) an elimination of the metaphysical elements from science, (2) economy and simplicity of the notions of science, and (3) the power of reconstructing nature. But we saw that there was more involved in it than a bare *recital* of experience. It involved *prediction* of experience and *reconstruction* of experience. It included that additional something which Goethe had in mind when he said, "Experience is only half of experience."

And what is Professor Boltzmann's attitude to this ideal? He believes it to be but a passing stage in the development of the theory of scientific explanation; he accepts it, but with qualifications.

Professor Boltzmann is a mechanicalist and an atomist in physical doctrine, a champion of pure analogy in scientific explanation and discovery, a repudiator of the absolute congruence of nature with the so-called laws of science, and so forth,

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[1] Boltzmann, *Katalog mathematischer und mathematisch-physikalischer Modelle, Apparate und Instrumente*, Munich, 1892: C. Wolf & Sohn.

and so forth. In all this he is upheld by the current conceptions of physics. For "description," he is prone to substitute, as we have seen, analogies, comparisons, and models, which are not necessarily bound to agree in all points with the phenomena which they are invented to explain, and which have the remarkable advantage over the "hypotheses" of the classical theoretical physicists, that no minor disaccord with nature destroys their reality! His ideals, as we have also intimated, lie rather with the school of Faraday, Maxwell, and Lord Kelvin, than with those of Galileo, Newton, Lagrange, and Kirchhoff. He is of the opinion that without the use of hypothetical elements no progress of knowledge is possible beyond the unsimplified noting of individual phenomena in memory. All simplification of memory-pictures, all apprehension of uniformities, and all rules designed to embrace complicated phenomena in a concise and simple manner, and to predetermine their course, rest upon the employment of representative pictures, or images, which have been obtained from the consideration of other simple phenomena and volitional acts, which are quite extrinsic to those to be explained. But it is only fair to say that his objections are not based upon the untenability of Kirchhoff's ideal, but rather upon the *unsuspected identity* of that ideal with the very doctrine of atomism which it would replace. For example, Professor Boltzmann holds that the naked enunciation of partial differential equations and the prediction of phenomena by the same, without reference to the physical or metaphysical forces or agents underlying these phenomena, constitute a process which itself involves an appeal to extrinsic elements. The equations are merely rules for constructing certain numeral series, or manifoldnesses, which have no direct and intrinsic connexion with the events themselves. So also the electro-magnetic equations of Maxwell contain hypothetical and adscititious elements,—elements which have been transferred from our observation of finite bodies and applied to purely theoretical fictions which have no more objective validity than have the atoms, and whose justification consists merely in the agreement of their results with experience, which is also the criterion of the validity of the atomic theory.

Professor Boltzmann repudiates the contention that adscititious elements are added to the facts by atomism, and not by the partial differential equations; and, further, he would limit his atomism to the minimum amount of properties needful, entirely unadulterated with metaphysical additions. His atomism, thus, would itself constitute the nearest possible approximation to Kirchhoff's ideal. He admits the possibility of some other equally satisfactory explanation of nature, but before the atomistic doctrine is discarded he demands that one of equal clearness and exactitude be substituted for it. *Hic Rhodus, hic salta!* In fine, he claims the same abstract advantages and excellencies for his system as Kirchhoff does for his, and we are inclined to conclude that his partial opposition to the latter is due to a sincere endeavor to embrace under a single point of view the two ideals of research which have made most for the advancement of science. Virtually, the two are the same. The refinement of the notions of atoms, centers of force, etc., led ultimately

to Kirchhoff's ideal, and it will ultimately dispense with that intricate scaffolding which entwines the edifice of recent physics. It is an ascending process of abstraction merely, in which the unessential is inevitably eliminated.

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Of the mechanics proper of the volume, we may say that Professor Boltzmann has sought to reinstate the science in its old form, as opposed to the newly-promulgated reconstructions, which have given it an entirely foreign dress. At the same time, his aim is to profit by the new criticisms and to avoid the old obscurities,—to free the old system of its defects while not destroying its familiarity. The work is complementary to his *Gastheorie*, which is not yet completed. The present volume is the first part; the second part will treat more particularly of the principles required in the *Gastheorie*. T. J. McCormack.

Des Méthodes dans les Sciences de Raisonnement. Par *J. M. C. Duhamel*, Membre de l'Institut, etc., etc. Five Vols. in 8vo. Paris: Gauthier-Villars, 55 Quai des Grands-Augustins. Price, for the entire work, 27 fr. 50 c. (Also sold singly.)

The present work is divided into five parts. It is not new, having first been published in the period from 1866 to 1872. It is a classical production in the philosophy of the exact sciences, but as it has not had the vogue in America or in England which from its general excellence and originality it deserves, and as its various parts have run through several editions, some of which are quite recent, we hold ourselves justified in giving a general characterisation of its objects and contents.

M. Duhamel was born in 1797, and died in 1872. He held relatively high rank as a mathematician, but his chief fame rests upon his successful activity as an educator, as an author of high class mathematical text-books, and as a shaper of methods of instruction. He was educated at the École Polytechnique, and was associated with the same institution as professor for more than thirty years. The idea of the present work on the philosophy of the exact sciences took its origin when he was a student engaged with the classical difficulties that, from the inception of philosophy, have ever disquieted the thinking mind. The career of instruction which he subsequently adopted involved, to his conscientious feeling, the obligation of removing these difficulties. It was not in his nature to affirm the exactitude of things concerning which he was himself in doubt; neither could he be content with possessing the conviction of that exactitude while unable to impart it to his pupils. His inward sense revolted against the counsel of D'Alembert, "Keep on, and faith will come to you." The imperative duty of his new calling, therefore, was, first, to remove the difficulties for himself, and, secondly, to give a clear and rigorous elucidation of them for the benefit of his pupils.

Such was the origin of the great work before us. It is the achievement of a mathematically trained mind, and exhibits the usual excellencies and shortcomings

of this type of thinking. It is also a characteristic production of French thought, preserving the main traditions of the philosophy and psychology of Descartes, and of the deistic theology of the eighteenth century.

In studying the general questions presented by the development of the mathematical sciences, M. Duhamel was naturally led to study the same methods as embodied in the various other rational sciences, whatever their nature and scope. His original task was thus broadened into a study of pure logic in its entirety, to which he restricted himself, quite to the exclusion of psychology. The first part of his work treats of the methods of reasoning to be pursued in the resolution of problems presenting themselves in any science in which research starts from ideas that are admitted as self-evident, and from principles that are regarded as certain. His logic differs from the syllogistic logic of Aristotle as improved by Euler; for he believes it to be a contravention of reason to seek the necessary and sufficient criteria for determining the correctness or falsity of deductive thought, when it is known that the reasoning necessary to establish these criteria must be conducted without their assistance,—all of which can by hypothesis lead only to uncertain results. The correctness of a deduction is recognised by its evidence, and Descartes, in subjecting all knowledge to the touch-stone of this feeling or sentiment of evidence, rejected all the precepts of logic, as unfit guides in the search for truth. Such was the opinion, also, of the author of the famous Port Royal Logic, who, while admitting the uselessness of the syllogistic rules for deduction, recommended them as an exercise for the mind. It is strange, M. Duhamel thinks, that Aristotle, intellectual giant that he was, should not have considered the analytical method which has been attributed to his master, Plato,—a method in which M. Duhamel discovers the key to the logic of science, and which is applicable not only to mathematics but to all sciences in which reasoning from necessary and sufficient data is involved. The logic of Aristotle was occupied exclusively with defining the precautions which were necessary to avoid incorrect conclusions, which in practice there is scarcely any danger of drawing, instead of detailing methods according to which the deductions should be conducted in order to demonstrate a doubtful proposition or to solve some given problem.

We shall now give a few brief indications of the method and type of thought which M. Duhamel himself pursues. The state of certainty is produced in man by the vivid sentiment of truth, that is, by evidence. But this evidence is not infallible; it must be admitted with extreme reserve. There are truths, however, the evidence of which strike all minds immediately, and which must be admitted as points of departure; and the object of methods of reasoning is by the assistance of these truths to establish others which will produce in men the same sentiments of evidence. Higher beings would have no need of such methods, but would see the truth directly by the same evidence with which we saw the initial truths. To such beings our methods would be unnecessary; they are made only to supplement the weakness of the human mind.

The necessary relations derived from the nature of certain things are the laws of those things. The definition of a thing is the statement of the relations connecting it with known things. The operation of the mind by which we arrive at the knowledge of an unknown relation from other known relations is called deduction, or reasoning. The deduction is effected by the sentiment of evidence, which has need of no rule, and can be supplanted by none. The syllogism is a mere tautology; it merely tells us that when we have discovered that a certain property belongs to some individual thing, we have the right to assert that it belongs to that individual thing. The errors committed in reasoning spring far less frequently from mistakes of deduction than from the incorrectness of the initial propositions. The place where the error is most likely to arise is in the establishment of the general propositions of science, and in the act of determining whether given individual things are really comprised in those propositions. When a proposition has risen to the stage of an axiom, it exhibits all the guarantee that one can hope for, inasmuch as it has the sanction of all mankind at all times; it must be believed in, or we must renounce the usage of our intelligence; it is one of those beliefs that have been inspired in man by the author of his existence, and by which man has never been lead into error. Besides these primary propositions, there are less certain truths which are called axioms of the second order, and an additional class of propositions which are designated conjectural, such as our belief in the existence of matter, the belief in the determinateness of things, and so forth, and so forth.

In the entire first volume we detect the distinguishing marks of the scientific philosophy of the middle of this century: the repudiation of metaphysics, the substitution therefor of an equally fragile philosophical foundation, a certain independence of religious dogma, but in place of the latter, a hereditary dependence on the central principle of the deistic philosophy. The general test of truth is *evidence*, which has an entirely subjective, but no objective, criterion, unless it be the old theological criterion of Descartes, that God can never have willed to deceive his creatures.

The foundations past, the reasoning is more solid, In the remainder of the first part of the work we have a very fine discussion of the principles of formal logic, the methods of deductive procedure in science, of the methods of analysis and synthesis, and many luminous remarks upon the history of scientific logic with Plato, Aristotle, Euclid, Pappus, Descartes, Bacon, Arnaud, Condillac, and the rest. Incompatible and contradictory propositions are defined; the possibility of drawing correct conclusions from false premises is clearly discussed; the nature of the rational sciences is analysed, and their classification for the purpose in hand briefly indicated; the various methods for demonstrating the correctness or falsity of propositions is given; and so on.

The greatest stress is laid by the author on his enunciation of a new form of the ancient method of mathematical analysis, which he has perfected, extended, and made more precise. The method of analysis as defined by Euclid regards a

proposition as demonstrated when the inquirer has deduced from that proposition as a necessary consequence some other proposition which is already recognised as true; but the statement of the method is faulty, for it is well known that true propositions can be correctly deduced from false propositions. The exposition of the ancient method of analysis as given by Pappus is the same as that of Euclid, but in this exposition a check is placed upon the reasoning in that it is required that the analytical demonstration shall be reversed, and the chain of ratiocination conducted backward synthetically from the result reached by analysis, to the original proposition. The method of analysis which M. Duhamel proposes, and which is necessarily followed in every case where rigorous demonstration is effected, avoids the reversion of the process, and renders the analytical procedure alone sufficient. But the analytical procedure of M. Duhamel is rather a procedure of discovery; it requires the investigator to search for some proposition of which the original proposition is a necessary consequence; and then again to search for some other proposition of which the one which was first sought is a necessary consequence; and so on, until a final proposition is reached of which the proposition next to the last is a necessary consequence. It is a method for *seeking* and not necessarily a method for *finding*. And we may add that the reversion of procedure which is regarded as the defect of the method of Pappus is not really avoided, but is effected step by step and coincidently with the analysis. It is to be observed, further, that the reversion is necessary, for unless the successive propositions are reciprocal the deduction could not proceed from the proposition to be established to that which was sought and which is known to be true. So much for *propositions*. The procedure for the solution of problems is analogous, but more varied.

Having thus in the first part of his work expounded what a rational science denotes, how it takes its being, of what nature are its problems, and what the methods are that guide the mind in its search for their solution, M. Duhamel has proceeded in the second and third parts of his work to apply these general considerations to the most perfect of all the sciences, namely, to the science of numbers and to the science of space. He considers these branches of knowledge as to their mode of origination, establishes their primary data,—that is to say, the data which are necessary and sufficient for determining the nature of their subject-matter,—and then proceeds to their development, not in all their details as expounded in special treatises, but in a perfectly general manner, so as to reveal the concatenation of the ideas in each of these branches, their most natural order of presentation, and the spirit of the various theories in which they have been embodied. Although commencing with the beginnings of mathematics, these sections are not intended for beginners; they involve a philosophy of arithmetic, algebra, analysis, and geometry which will appeal more particularly to instructors and to advanced students. But it must be remarked here that, so far as the subject matter allows, the very simplest illustrations have been selected. Only where complications themselves involve difficulties of principle are they attacked.

In the fourth part of the work, M. Duhamel has applied the general considerations developed in the first part to mechanics or the "science of forces." Technically this is one of the most important parts of the work.

In the fifth part, which is a very brief posthumous publication, he has attacked the problems of ethics, sociology, and theology. He had intended this section to be the final application of the principles so finely expounded in the work proper. "The scientific spirit," he said, "is the only legitimate guide in the study of any subject in which the elements exhibit relations which admit of the employment of reasoning." The scientific spirit, in this same sense, is made his only guide in his excursions into the realm of sentiment and of faith. It is distinctly the weakest part of the whole work, and offers a fine specimen of the very type of research which he sought to undermine by his investigations on the methods of science. Objection cannot be made so much to his reasoning as to the premises from which his reasoning starts; and such premises, as all know, are largely a matter of heredity, constitution, personal experience, and habit. But it seems impossible that a man who was a contemporary of Darwin, Strauss, and Renan could have uttered opinions like those here given on the origin of life and the system of divine providence. Of the discoveries of modern research in the domains of biology, ethnology, anthropology, and sociology, there is no trace or appreciation. Of the nobility of character, purity of sentiment, and high ideality which pervade this part of the work, there can be no question whatever; but when we look back upon the fine achievements in the theory of knowledge, in logic, mathematics, and mechanics, and formal philosophy generally, which the preceding parts exhibit, it is impossible to conceive that this last part was elaborated by the same mind. Nevertheless, from the point of view of the deistic theology itself, the development must be regarded as a considerable advance upon the old position.

This fifth part is in no sense an integral portion of the work, and is entirely in the nature of an appendix; it can be neglected. Each other part is complete in itself and obtainable by itself. And many will find here the elucidation they seek on all the subjects enumerated. T. J. McCormack.

GRUNDRISS EINER GESCHICHTE DER NATURWISSENSCHAFTEN. Zugleich eine Einführung in das Studium der grundlegenden naturwissenschaftlichen Litteratur. Von *Dr. Friedrich Dannemann*, Direktor der Realschule zu Barmen. II. Band: Die Entwicklung der Naturwissenschaften. Mit 76 Abbildungen, zum grössten Teil in Wiedergabe nach den Originalwerken und einer Spektraltafel. Leipzig: Verlag von Wilhelm Engelmann. 1898. Pp., 435. Price, M. 10.50, bound.

Dr. Friedrich Dannemann has just published the second volume of his *History of the Natural Sciences*, which was begun in 1896. Volume I. consisted of a series of extracts from the works of the great natural philosophers and scientific inquirers of all ages, and aimed to give in each case a specimen of the spirit and power which

created the great fabric of modern language. In some respects the undertaking necessarily bore the impression of being fragmentary, and the majority of readers will be more pleased with the present second volume, which is a systematic and connected story of the development.

The author has had the advantage of the material gathered in Engelmann's series of *Scientific Classics*, and he has consciously exploited this fund to the fullest extent. Reproductions of original instruments and apparatus, of original diagrams and illustrations, which could otherwise have hardly been obtained, are strewn throughout the work, and greatly enhance its attractiveness and worth. Thus, for example, there are reproductions of the picture of the human muscular system given in the great work of Vesalius, printed in 1543; the telescopes and astronomical diagrams given in the works of Kepler; pictures of Gilbert's celebrated work *On the Magnet*; Tycho Brahé's quaint azimuth quadrant; the electrical machine and air-pumps of Guericke; Huygens's clocks; Leeuwenhoek's illustrations of human tissues; Ledermüller's illustrations of infusoria; the first electric pile of Volta; Hauy's dodeckahedra; and the plate of the spectrum analysis first published by Kirchhoff and Bunsen, in 1860; etc., etc.

Dr. Dannemann has not slurred antiquity, and has given a much more appreciative estimate of the achievements of the ancients than is generally found in works of this character. He has not omitted to emphasise the consideration of the social and religious factors which have influenced science, and in many cases has well characterised the constant struggle for existence among ideas which has been a distinguishing mark of the development of modern knowledge. Mechanics, physics in all its branches, chemistry, astronomy, zoölogy, botany, and biology, come successively under his ken. The presentation generally is continuous and pleasing, and the author is to be congratulated upon the successful issue of his task. The book is one which fills a real want, and should be welcomed by all instructors of science.

T. J. McC.

PRISMATIC AND DIFFRACTION SPECTRA. Memoirs by *Joseph von Fraunhofer*. Translated and edited by J. S. Ames, Ph. D., Professor of Physics in Johns Hopkins University. New York and London: Harper & Brothers. 1898. Pp., 68. Price, 60 cents.

THE FREE EXPANSION OF GASES. Memoirs by Gay-Lussac, Joule, and Joule and Thomson. Translated and edited by J. S. Ames. New York and London: Harper & Brothers. 1898. Pp., 106. Price, 75 cents.

It was inevitable that some English or American scientist should have been led to follow the example of Professor Ostwald, of Leipsic, in the publication of a series of Scientific Classics, and it is well that the work should have fallen into such good hands as those of the present editor and publishers. The new English series is termed "Harper's Scientific Memoirs," and will be similar in contents to the

German series published by Engelmann, of Leipsic. Nevertheless, it is not a slavish imitation of its prototype, but in many respects embodies real improvements over its predecessors. The selection of memoirs is not entirely the same, and it seems likely that, for the present at least, it will be limited to physics. The editor is Dr. J. S. Ames, professor of physics in Johns Hopkins University, the associate of Rowland, the author of an excellent text-book on the *Theory of Physics*, and an independent inquirer of merit. Professor Ames has edited and translated the first two volumes of the series, the names of which are given at the head of our review; he has supplied prefaces characterising the scientific importance of these two memoirs, has in each case added helpful bibliographies, and has made indexes, something which is never found in a German book.

The historical importance of the first volume, which is made up of the memoirs of Fraunhofer on prismatic and diffraction spectra, may be best seen by a glance at the history of the subject. The spectrum of the sun which Newton first observed in 1666 through a small round opening in a shutter was impure. Wollaston, whose memoir is also printed in the first volume, was the first (1802) to obtain a pure spectrum, in which he observed *several dark lines*, which he interpreted as the demarkations of the spectral colors. In 1814, Fraunhofer independently discovered these lines, which in all physics now bear his name. Like Wollaston, he also at first used a slit and prism; but his most important discovery was that the same phenomena could be obtained *by means of gratings made up of wires or ruled on glass*. The interpretation of the physical meaning of the Fraunhofer lines was reserved for the genius of Kirchhoff.

The "great merit" of the memoirs of Fraunhofer here reproduced is characterised by the editor as "the systematic and logical method by which he proceeds from investigation to investigation." And it is to be noted that the choice of these memoirs as the initial number of the new American series of scientific classics has a peculiar significance through the fact that in this country to-day, and at Johns Hopkins University, the finest diffraction-gratings in the world are made, and that at that university the researches which took their origin in Fraunhofer's investigations have been pushed through Professor Rowland to their highest consequences. The general importance of the American contributions to this subject can be clearly seen by a glance at the bibliography given in the book.

The second number of the series is that on the free expansion of gases, being the memoirs of Gay-Lussac, Joule, and Thomson. They form part of that magnificent scientific development of the nineteenth century which constituted the foundation of the doctrine of the conservation of energy and its extension into the science of thermodynamics. Most of these essays are not generally accessible to scientific students, and it must be regarded as nothing less than a boon that they have now been placed within easy reach. The Memoirs will be especially valuable to students of the philosophy of science. It is here that science can be seen in its making, and the stimulus which comes from contact with the great minds of its found-

ers cannot be overrated. We hope to mention the succeeding numbers of the series as they appear. T. J. McC.

LECTURES ON THE GEOMETRY OF POSITION. By *Theodor Reye*, Professor of Mathematics in the University of Strassburg. Translated and edited by Thomas F. Holgate, M. A., Ph. D., Professor of Applied Mathematics in Northwestern University. Part I. New York: The Macmillan Company. 1898. Pp., 248+xix.

Reye's *Geometrie der Lage* has long been a celebrated book in the English-speaking world, and has been made the foundation of many English expositions of the subject, notably that of Professor Henrici in the *Encyclopædia Britannica*. But it was not until last year that the work could be consulted by students ignorant of German. This was made possible by the translation of Professor Holgate, who deserves the thanks of all students of pure geometry for his laborious task.

Modern synthetic geometry is mainly a development of the nineteenth century. Prior to that time, and particularly in antiquity, geometrical discoveries, while important, were largely of a fragmentary and disjointed character, and not connected by systems of general principles; and, if we except the method of analysis attributed by Pappus to Plato, there was no general system of procedure by which new discoveries could be made possible. It was precisely this defect that lead Descartes to substitute for the ancient methods that powerful instrument of discovery called analytical geometry, which evolved new truths by sheer mechanical procedures alone, and which, by its great success, diverted the minds of philosophers and scientists for nearly two centuries from investigations in pure geometry proper. The new movement began with Monge's work on *Descriptive Geometry* and Poncelet's *Treatise on the Projective Properties of Figures* (1822), in which last work the principles of continuity and reciprocity and the method of projection were used. The successors of these great inquirers were Steiner, Chasles, Von Staudt, and two living authors,—Reye and Cremona.

The real distinction between the old and the new geometry, as represented by the names last mentioned, can be summed up in the fact that while the former was almost entirely metrical, the latter is almost purely positional. For example, in the old geometry we constantly deal with such things as the bisection of segments of straight lines, with right angles and perpendiculars, with ratios, proportions, the computation of areas, and, in its subsequent development, with trigonometric ratios and the algebraic equations of curved lines, all of which involve the idea of measurement. But in pure geometry nothing of this kind is introduced, although its results admit of metrical application. There is no talk of isosceles or equilateral or right-angled triangles, rectangles, regular polygons, etc. The centres, axes, and foci of conic sections "are considered as incidental only to the general theory; but, on the other hand, we are made acquainted with properties of these curves which are more general and more important than those to which most text-books of ana-

lytical geometry are restricted." In pure geometry we start with a small number of so-called "primitive forms," and, from the simple relations obtaining between these, proceed to forms of the second order, and so on. The generality and comprehensiveness of the results, which are not based solely on metrical considerations, are such that the most important of the properties of conic sections proved in the text-books of analytical geometry are merely special cases of its theorems.

The preliminary knowledge necessary for the prosecution of synthetic geometry is not great; a profound knowledge of the old geometry is not required; but skill in producing mental images of geometric forms without the use of diagrams is important, as is also a knowledge of perspective or central projection, as well as of descriptive geometry generally. Conversely, the study of synthetic geometry is a great help to the prosecution of the last-mentioned studies themselves.

Its distinctive educational result would be, therefore, to enhance the development of the power of imagination, for which its study can be particularly recommended. The author believes that this is best obtained by the method of Von Staudt which "excludes all calculations, be they complicated or not, which make no demands upon the imagination," and "arrives at the knowledge of the geometric truths upon which he bases the geometry of position, by direct visualisation." But, in absolutely discarding diagrams, and other auxiliaries of the visualising sense, Reye has not followed Von Staudt. He has not sought to increase the difficulties of the subject.

The tendency of all recent educational methods lies in this direction: the utmost development of the powers of sense and consequent imagination. Here lies the basis on which the abstract must build, and the more perfect that basis the more solid will be the superstructure. The most powerful pleas of the greatest of recent mathematicians have been made for "visualisation"; and it is to be hoped that the present beautiful volume will mark, in English-speaking countries also, a distinct stage in the progress towards this goal. T. J. McCormack.

La géométrie grecque. Comment son histoire nous est parvenue et ce que nous en savons. Essai Critique. By *Paul Tannery*. Première Partie: Histoire générale de la géométrie élémentaire. Paris: Gauthier-Villars. 1887. Pages, 188+vi. Price, 4 fr. 50 c.

Recherches sur l'histoire de l'astronomie ancienne. By *Paul Tannery*. Paris: Gauthier-Villars. 1893. Pages, 370+viii. Price, 6 fr.

The researches of M. Paul Tannery in the history of ancient mathematical and physical science are well known. To call wider attention to his investigations we should like to mention two of his works in this field. The first of the books listed at the head of this notice deals with the traditions which prevailed on the history of geometry among the Greeks. For a knowledge of Greek geometry proper, says the author, we must study the writings of Euclid, Archimedes, Apollonius, and Pappus; but for the history of the science we must go to other sources; and

to give a methodical criticism of these sources has been his object. He would ascertain how these traditions have been formed, how they have been transmitted, upon what data they originally rested, what is their degree of general probability, etc. Such a task is a condition precedent to any attempt to write the history of Greek mathematics. but it is a task which has not yet been accomplished, at least for the science at large.

The treatment centers necessarily about Proclus, but is by no means limited to this author. The work is divided into fourteen chapters, devoted to such subjects as the following: The Epoch of Geminus; the Classification of Mathematics according to Geminus; the Applications of Geometry in Antiquity; the Tradition concerning Pythagoras; the Elements of Euclid; Hippocrates of Chios; the Technology of the Elements of Euclid; the Successors of Euclid; Hero; and so forth.

The second volume mentioned is mainly consecrated to giving a complete and exact analysis of the great *Almagest* of Ptolemy which is the epitome and codification of the astronomical knowledge of the ancients. The author has sought to trace from a new point of view the entire development of the positive astronomical knowledge of the Greeks, and has also insisted upon the difference between the successive conceptions which have been formed of celestial science. He has been obliged to omit the consideration of what he regards an important factor in this process; namely, the great influence which was exerted on the progress of real astronomical knowledge and on the formulation of theoretical questions by the various superstitions prevailing in antiquity with regard to the stars, and particularly by the superstitions of the official astrology. The opportunity for the full treatment of this question he deems not yet ripe, inasmuch as a sufficient number of cuneiform texts has not yet been deciphered to exhibit the Chaldean doctrines in their entirety, and to enable us to distinguish in their astrology what was original from what is modern. Also, for the opinions of the early Greek physiologers, he refers the reader to his celebrated work, *Pour l'histoire de la science hellène* (Paris: Félix Alcan. 1887).

A further effort of M. Tannery has been to separate in the *Almagest* the original contributions of Ptolemy from those of his predecessors, particularly of Hipparchus. Even the contributions of Hipparchus to astronomical science appear to M. Tannery to have been greatly exaggerated. Without the labors of the earlier astronomers of the Alexandrian school,—and especially those of Apollonius,—Hipparchus would have been unable to accomplish the best part of the work which has made him immortal. And without Hipparchus, Ptolemy could never have composed his *Almagest*. The history of ancient astronomy, therefore, presents *an aspect of continuity* from Eudoxus to Hipparchus, and the conception of such a development is far more natural and comprehensible than that of the entire constitution of the science by a single man, as it is pictured in so many books to-day.

There are fifteen chapters, the subjects being: (1) The Greek Conception of Astronomy; (2) The Greek Conception of Astrology; (3) The Mathematics of Alex-

andria; (4) The Postulates of Astronomy According to Ptolemy; (5) The Sphericity of the Earth; (6) The General Movement of the Planets; (7) The Circles of the Sphere; (8) The Length of the Solar Year; (9) The Tables of the Sun; (10) The Periods of Hipparchus for Lunar Movements; (11) The Tables of the Moon; (12) The Parallaxes of the Sun and the Moon; (13) The Prediction of Eclipses (14) The Theory of the Planets; and (15) The Catalogue of the Fixed Stars.

An appendix contains a number of studies on important special points, and also a translation of an Arabic treatise by M. De Vaux on Celestial Spheres. *μκρκ*

COURS COMPLET DE MATHÉMATIQUES ÉLÉMENTAIRES. Publié sous la direction de *M. Darboux*, doyen de la Faculté des Sciences de Paris. Paris: Armand Colin et Cie., 5 rue de Mézières.

Leçons d'Arithmétique théorique et pratique. Par *Jules Tannery*. Large 8vo. Pp., 510. Price, 5 fr.

Leçons de Géométrie (Géométrie plane). Par *Jacques Hadamard*. Large 8vo. Pp., 308. 6 fr.

Leçons d'Algèbre élémentaire. Par M. C. Bourlet. Large 8vo. Pp. 550. 7 fr. 50.

Leçons de Trignométrie rectiligne. Par *M. C. Bourlet*. Large 8vo Pp., 322. 6 fr.

Leçons de Cosmographie. Par MM. *Tisserand* et *H. Andoyer*. Large 8vo. Pp., 370. 6 fr.

The new "complete course of elementary mathematics" now publishing in France under the supervision of M. Darboux, member of the Institute and dean of the Faculty of Sciences at Paris, is in many respects a notable one, and, as the expression of one of the most significant reforms of modern education, deserving of the best attention of American and English instructors of mathematics, as well as of all others interested in this study. The language of the books is easy, and the commonest reading knowledge of French will suffice for access to this unique store of knowledge, compiled by some of the best of modern specialists under the direction of one of the most distinguished of living mathematicians. The books are instinct with the modern spirit, are thoroughly alive to the exigencies of present life and practice, and are remarkably cheap. In addition, they deviate so widely from the inherited routine practices of American and English text-book making as to furnish, through this feature alone, a powerful stimulus to the student or teacher.

The first volume is the *Arithmetic* of M. Tannery (510 pages),—a complete, detailed and accurate exposition of the science, not containing everything under the sun, nor being a digest of everything ever written on the subject, but in the main practical and natural despite its insistence on method and the mass of apparent superfluities which so large a work must contain. It goes to the kernel of its subjects, begins with the concrete, proceeds gradually to the abstract, seeks to illuminate the *technique* of operations by the exposition of the logic at the bottom of

them, and ultimately lands the student among the elements of the theory of numbers. The principles are uniformly emphasised; there are occasional historical notes; and great attention has been paid to the examples, which are not a collection of puzzles but an organic record of practical mathematical thought, culled from a multiplicity of sources. Noteworthy are the treatment of fractions and irrational numbers, the insistence on methods of approximation, the introduction of the notion of limits, and the discussion of the relations of continuous quantities and numbers.

The text-book on *Algebra* (548 pages) is by M. C. Bourlet, professor in the Lyceum of Henry IV. It begins with a long and detailed exposition of the theory of negative numbers, on the ground that a systematic exposition of the commutative, associative, and distributive properties of operations with numbers is fundamentally that of "algebraical operations." Examples of functions of a single variable have been introduced, as have also the graphical representation of the variation of a function, some few notions of analytical geometry, and the doctrine of derivatives. In the selection of methods, preference has always been given to that which admitted of subsequent extension. The employment of modes of exposition, which must afterwards be abandoned, has been absolutely eschewed. Thus an economy has been attained which in the higher branches is destined to bear multiple fruit. The author, who has consulted the classics and the best foreign text-books, has devoted the same care to the selection of his examples as M. Tannery, and produced upon the whole an exemplary work.

The treatise on *Plane Trigonometry* is also by M. Bourlet (322 pages). The bulk of the book is devoted to the matter required by the general French programme for elementary mathematics, while a more advanced appendix of 75 pages is designed for special students of mathematics. This appendix treats of the trigonometric representation of imaginary quantities, the formula of Moivre, the roots of imaginary quantities, binomial equations, and the trigonometrical resolution of cubic equations. The main text is divided into three parts. The exposition begins with a discussion of the theory of vectors, equipollency, resultants, algebraical and geometrical sums, projections, etc. The first book deals with the fundamental formulæ, the fundamental relations, and the fundamental operations. The second book deals with trigonometrical equations, the construction of tables, logarithms, etc. The third book is devoted to the solution of triangles, and the many various applications of the latter theory.

M. Hadamard's *Plane Geometry* takes up some 308 large octavo pages. In the composition of his work the author has kept the fact constantly in view that geometry occupies the first place in mathematical instruction. It is the simplest and most accessible form of reasoning, and the scope and fecundity of its methods are far more immediately palpable than those of the relatively abstract theories of arithmetic and algebra. In view of its unique position, the science is thus capable of exercising a powerful promotive influence upon the activity of the mind. This

influence the author has sought to develop by arousing and fostering as much as possible the originality and initiative of the student. He has given as much room as possible to the exercises, which as a rule are of a studied, connected character. He has added in an appendix a valuable note on the methods of procedure in geometrical discovery, and also notes on the postulate of Euclid, regarding which the ideas of modern geometricians have taken so clear and definitive a form as to render it possible to give some exposition of their ideas in an elementary work. There is also a note on the problem of tangent circles and one on the notion of areas. To the third book, which treats of similitude, etc., a modern supplement has been added, treating of vectors, transversals, reciprocity, the anharmonic ratio, poles and polars, inverse figures, etc. All such innovations have given a distinctively modern stamp to the treatment, which in all matters where generality is involved departs radically from the methods of Euclid and Legendre; for example, the consideration of the directions of rotation of angles has enabled the author to give full generality to the propositions regarding circles, without rendering these propositions less simple or elementary.

The *Cosmography* of M. Tisserand, director of the Paris Observatory, and M. Andoyer, lecturer in the Faculty of Sciences of Paris, is a valuable contribution to the text-book and reading literature of astronomy. The authors understand the art of separating what is essential from what is accidental, without destroying the intrinsic beauty of the science. The many current fictions of astronomy are frankly stamped as such, and the solid acquisitions clearly delineated. The development of the text is clear, accurate, and methodical; little mathematics is required, and that not extending beyond elementary trigonometry. The most recent investigations have been recorded so far as possible, and twelve excellent plates, which have been made from the best modern photographs of the heavens, have been added to the work. Considerable matter of those branches which are called physical geography and mathematical geography has been incorporated. At the conclusion, more than one hundred pages have been given over to the history of astronomy, and to notes upon special technical points of difficulty.

The two succeeding volumes of the series are announced as being in the press; they are a treatise on solid geometry by M. Hadamard, and one on mechanics by M. Koenigs. μ.

LETTRES INÉDITES DE JOHN STUART MILL À AUGUSTE COMTE. Publiées avec les résponses de Comte et une introduction par *L. Lévy-Bruhl.* Paris: Félix Alcan. 1899. Pp., 560+xxxviii. Price, 10 fr.

The Letters of August Comte to John Stuart Mill were published in 1877 by the Society of Positivists. The letters of Mill were not included in the volume. Professor Lévy-Bruhl, who was fortunately able to procure a faithful copy of Mill's letters, now publishes the text of the correspondence on both sides.

The letters are eighty-nine in number, and extend over a period of six years

(1841–1847). The correspondence was from the start actively conducted, two letters having been exchanged nearly every month. It began with expressions of fervent admiration on the part of Mill, and it was not until the exchange of thought degenerated into controversy that the zeal of the two philosophers abated. It throws a strong light on the character of the two men, and the gentleness and receptivity of Mill are sharply contrasted with the intellectual rigidity of Comte. Comte was relentless in the support of his system. Mill proposed that they discuss together their "opinions" on a certain point; Comte answered that he had no "opinions"; he had a body of doctrine, a system; it was the precise object of his philosophy to do away with "opinions." He could not understand how he could be led to "modify his opinion" upon any given point. All that he would admit was that his opinion could be proved incompatible with his system. That system he believed to be demonstrated beyond a doubt; his philosophy was a science; and with it his whole being was identified. He could not understand how his English friends could accept one part of it and reject another, and it was ultimately his greatest grief that his sociology, which to his mind was the flower of his doctrine, should have been the point of greatest dissent. He believed Mill to be an unqualified adherent of his doctrine, and when he discovered that he was not, his interest in him waned. Through Mill, he eventually received what he called his "English subsidy" (6000 fr.) from Grote, Sir William Molesworth, and Mr. Raikes Currie, and was astonished when at the end of a year it was not repeated. He could not understand how any person who accepted his philosophy and religion could refuse financial support for its propagation, especially when such a person were rich.

The picture here offered of the great French philosopher is a very fine one, and the portrayal of the character of the English thinker has also taken a pleasing form. The one was the incarnation of rigor, the other was the embodiment of intellectual hesitancy. Mill could not be got to adopt a definitive opinion; he was not disposed to sacrifice the least particle of truth for the sake of rigorous consistency. Professor Lévy-Bruhl has well characterised the two types. The march of the philosophical thought of Comte, he says, is comparable to a straight line; that of Mill is comparable to a sinuous curve which indicates at every point of its path the influence to which it has been subjected. At one time the curve approached very near to the straight line, but it afterwards veered widely from it.

This collection of letters traces an extremely interesting episode in the intellectual history of the nineteenth century. For social philosophy in particular it is of great importance, and the editor, Professor Lévy-Bruhl, is to be congratulated upon the service which he has rendered in publishing the volume. T. J. McC.

KLEINE MATHEMATISCHE BIBLIOTHEK AUS DER SAMMLUNG GÖSCHEN. Leipzig: G. J. Göschen'sche Verlagshandlung. 1898. Price, each volume, 20 cents.

A series of scientific and literary manuals is now being issued by Göschen of Leipzig, which deserves notice both from its remarkable cheapness and from the

intrinsic value of many of its numbers. The little volumes of the *Sammlung Göschen*, which vary in the number of their pages from one to three hundred, are bound in flexible covers of a size convenient for carrying in the pocket, and cost but eighty pfennigs, or twenty cents apiece. The ground covered by the series is a broad one, embracing nearly the whole of German literature, editions of the early and mediæval classics, the modern masterpieces, foreign histories, grammars, dictionaries, and so forth, and so forth. The sciences are well represented in manuals of astronomy, geology, mineralogy, physical geography, botany, zoölogy, chemistry, anthropology, and so forth. But the mathematical group is perhaps the most complete of all. It has been published under the editorial direction of Prof. Hermann Schubert, of Hamburg, a former contributor to *The Monist*, who has embodied his views on arithmetic and algebra in one of the first of the volumes, and has added to it in another a collection of examples. Professor Schubert has also compiled a *Table of Four-Place Logarithms* which is unique in the respect that it is printed in two colors, and that tables of anti-logarithms are given, which dispense with interpolation. Prof. G. Mahler has written the text-book of *Plane Geometry*, the diagrams of which are printed in double colors, red and black; Professor Bürklen has compiled the book of *Mathematical Formulæ*, running from arithmetic to the calculus; Dr. Sporer has written the *Niedere Analysis*, which contains the algebraical matter necessary to the introduction to the *Calculus*, which has been treated in two volumes by Dr. Junker. The two *Analytical Geometries* have been written by Dr. M. Simon, and the *Projective Geometry* by Dr. Doehlemann. Three volumes on *Theoretical Physics* have been contributed by Dr. Jäger, of the University of Vienna; there are also manuals of perspective and drawing. The volumes, while not at all uniform as to their apparent purpose, method, or simplicity of presentation, are in the main to be commended. *μ.*

DIE ENERGETIK NACH IHRER GESCHICHTLICHEN ENTWICKELUNG. Von *Dr. Georg Helm.* Mit Figuren im Text. Leipzig: Verlag von Veit & Comp. 1898. Pages, 370+xii. Price, M. 8.60.

Dr. Georg Helm, professor in the Royal Technical Academy of Dresden, is well known in Germany in connexion with the recent developments of the doctrine of energy, and especially with the controversies which have arisen regarding this branch of general physical science. He is eminently fitted, therefore, for the production of a work of the present character, and every physicist and student of philosophy will find both the compilatory and original part of his work of value. It is a compendium both of the history and the methodology of the subject.

The book is divided into seven parts: the first deals with the history of the law of the conservation of energy in its earliest form, from the vague metaphysical ideas of the ancient Greeks down through the conceptions of the mathematical physicists of the eighteenth century to the enunciations of Robert Mayer and Helmholtz; the second deals with the work of Carnot, Clapeyron, and the prelim-

inary researches of Thompson; the third part deals with the thermodynamics of Clausius, Thompson, and the rest, as does also the fourth part; the fifth part is concerned with the rôle which the doctrine of energy now plays in chemistry, and deals largely with the work of the American inquirer, Gibbs, which was so long neglected; in the sixth part we have a treatment of mechanics on the basis of the law of energy; in the seventh, a discussion of the factors of energy; and in the eighth, a characterisation of the mechanical drift of the conceptions of energy, an excursion into the nature of atomism and the general methods of science. The entire literature of the subject, both German and foreign, has been carefully explored by Dr. Helm. *μ.*

L'Année biologique. Comptes rendus annuels des travaux de biologie générale publiés sous la direction de *Yves Delage*, Professeur à la Sorbonne. Avec la collaboration d'un Comité de Rédacteurs. Secrétaire de la rédaction, *Georges Poirault*, Docteur ès sciences. Deuxième année 1896. Paris: Schleicher Frères. 1898. Pages, 808+xxxv.

The present *Année biologique* is for the year 1896, and shows an increase of seventy-six pages over its predecessor for 1895, which was the first volume of the publication. The labor involved in the compilation of such a work as the *Année biologique* is enormous, and it is to be expected that the sacrifices of time and labor which have been made by the editor and his many associates will be appreciated by the scientific world. Without some such work as this in biology, it would be impossible for any one to keep the merest record of the myriad publications which are, or may be, of importance in some special branch. The *Année biologique* differs slightly from other year-books in that it is not merely a catalogue of the publications in biology, but a compendium and logical index of the progress of the science for each year; and also in that the greatest stress is laid not upon facts, but upon the explanation of facts. The province of biology has been divided into twenty departments, and the work in each department made distinct from the rest. Some of the titles are as follows: The cell, fecundation, parthenogenesis, ontogenesis, teratogenesis, general morphology and physiology, heredity, variation, the origin of species, geographical distribution, mental functions, etc. The present volume is supplied with an analytical index, but we wish that some prefatory remark like that which accompanied the first volume, and also a synoptic table of contents, might have been added. Without these it is difficult to obtain a general and broad view of the contents. *μ.*

Arii e Italici; Attorno all' Italia Preistorica. By *G. Sergi*, Turin. Fratelli Bocca, 1898. Pages, iv, 228.

In this book, Number 4 of the *Piccola Biblioteca di Scienze Moderne*, Professor Sergi discusses the problem of the origin of European populations and civilisation, a problem which to his mind has not yet been solved. After showing the

entanglements into which those have been led who sought to unravel the historical threads interwoven in modern European life, he attributes their failure to the inadequacy of the criteria by which they have attempted to classify the races which at one time or another have appeared on European soil, and proposes another which, though not peculiar to himself, has been by him most thoroughly demonstrated and most widely applied. This criterion is, in a word, the form of the skull. Human skulls, he declares, are distinguished by many typical forms, with many subforms which are variations of the type. These typical forms have undergone no variations from the time represented by the earliest human remains.

There is nothing new in this, of course, to those who are familiar with Professor Sergi's contributions to Anthropological science. It is set forth at length in his monumental work on *Africa*, and elsewhere. But in applying it to the classification of early European races he overturns accepted theories in a way which renders the expression, "making the dry bones rattle," almost realistic. He separates the races finds for instance that a primitive Mediterranean stock practised inhumation, while the Aryans cremated their dead, and with this clue establishes a priority in time and Italian occupancy of the Mediterranean stock. This stock, the earliest inhabitants of Italy, belonged to the *Eurafrican* species which occupied the whole basin of the Mediterranean. He is able to point out to his own satisfaction the particular races indigenous to Europe, as the Neanderthal, for instance, which, he says, is probably of European origin, and to remove the Aryans from the position usually accorded them as the founders of European civilisation. It is the Mediterranean stock, he concludes, which now for the third time dominates Europe.

The reader will find in the second and third chapters an extended and interesting discussion of the Terramare and ancient pile-dwellings which have provoked so much discussion. Professor Sergi brings to the discussion of these remains of primitive civilisation, as well as to his main thesis, a wealth of learning and observation which assures respect for his opinions, whether they are accepted or not. A number of illustrations in his book assist the reader in grasping his arguments.

I. W. H.

PAPERS OF THE ARCHÆOLOGICAL INSTITUTE OF AMERICA. CLASSICAL SERIES. II. REPORT ON THE INVESTIGATIONS AT ASSOS, 1882, 1883. Part I. By *Joseph Thacher Clarke*. With an Appendix. Printed at the Cost of the Boston Society of Architects. New York: Published by The Macmillan Company, 66 Fifth Avenue. 1898. Pages xvi, 376.

This volume contains a valuable addition to the Preliminary Report issued in 1882 of the Investigations made at Assos, in the years 1882 and 1883, which resulted in discoveries which, in the words of Mr. C. E. Norton, President of the Archæological Institute of America, who has supplied an Introductory Note to the work, make possible "a complete recovery of the plan and elevation of civic structures quite unique in design and plan." A letter to Mr. Norton from Mr. Edward

C. Cabot, President of the Boston Society of Architects, which contributed towards the expenses of the expedition inaugurated by the Archæological Institute, is still more emphatic in its expression of the value of the results attained. Mr. Cabot writes: "This new exposition of the Greek spirit has proved far more complete "than the most sanguine friends of the enterprise had anticipated. It has shown "us the Greek architect experimenting with forms, and profuse in invention, yet "always with self-denial and a just reserve of force; it has given us, perhaps, the "best lesson yet derived from Greek antiquity in the grouping of buildings; it has "thrown new light upon the divine virtue of simplicity in art, it has given us sub-"stantially the only examples of the practice of the Greeks in domestic and civic "works, and, in short, it seems to have brought nearer to our sympathies and com-"prehension that spirit which the conditions of modern architecture require as a "corrective and purifying force."

It is impossible to enter here into any detailed account of the Investigations, full particulars of which are given in the three earlier chapters of the Report. These contain in addition disquisitions by Mr. Clarke on various questions arising out of the discoveries made, particularly on the significance of the Temple sculptures, the most important of which represent the adventures of Herakles among the Centaurs. The eastern and western façades were ornamented with heraldic sphinxes, the derivation and significance of which are treated of at considerable length. The relation of the sphinx to the griffin and leopard figures receives full consideration and is ably dealt with, as is the subject of one of the Temple reliefs supposed to represent the struggle of Herakles with the monster Nereus. Mr. Clarke gives various reasons, however, for believing that the combat is that which is said to have taken place near the coast of the Troad between Herakles and the sea monster who threatened the life of Hesione, owing to the wrath of Poseidon against Laomedon, king of Troy. This legend is one of the oldest of the Trojan Cyclus, and connected, says the author, with the primitive history of the country, and is repeatedly referred to by the singer of the Homeric epics as if familiar to all his hearers. We must refer our readers who are interested in mythic lore to the pages of Mr. Clarke's Report for further information on the subject. Its last chapter is occupied by an investigation into the age of the Temple of Assos, and the conclusion reached is that it was erected during the period which had seen the termination of the Persian wars, towards the middle of the fifth century before Christ, when the Greeks of the Asiatic coast were in the first enjoyment of their relief from Oriental oppression, and thus, notwithstanding the archaic character of its sculptures, of nearly the same date as the Parthenon. The explanation of this fact will be found in the Report, which contains numerous plates with figures in the text and is highly interesting reading, and an Appendix treating of the relations of modern to an ancient life and various other topics. The two Archæological Societies concerned in its production are to be highly commended for giving so valuable a document to the reading public and to the service of art. C. S. Wake.

DIVINE IMMANENCE: AN ESSAY ON THE SPIRITUAL SIGNIFICANCE OF MATTER. By *J. R. Illingworth, M. A.*, author of "Personality, Human and Divine. New York: The Macmillan Company. London: Macmillan & Co., Ltd 1898. Pages, xvi+254. 8vo. Price, $1.50.

The author of this work, like the majority of religious thinkers at the present day, accepts the theory of evolution, which he applies to the development of religion. This becomes more definite in the course of ages, its revelation being more precise. The "congruous climax" of such development is the Incarnation, which on the other hand presupposes such a past. To establish this position is the aim of the author's argument, the effect of which on any particular mind will depend entirely on its predisposition. Those who accept the opinion that God is immanent in nature, that is in matter, which thus acquires a spiritual significance, cannot reasonably deny that He is immanent in man, who is part of nature, and the Christian evolutionist will be prepared to entertain the belief that Jesus Christ was an actual divine Incarnation, seeing in him the culmination of God's immanence in the world of matter. Mr. Illingworth examines the usual arguments against the Incarnation and has no difficulty in showing that, in the absence of antecedent improbability, they have no real weight. It is in reality a question of fact, and as this is supposed to be unique, and from the nature of the case cannot be supported by direct evidence, its truth or otherwise must be judged of by the test of probability.

Mr. Illingworth argues that the Incarnation being an unique event is not miraculous in the sense in which this term is used by the opponents of the doctrine and he makes the Incarnation support its accompanying miracles instead of taking the latter as evidence of its truth. The real evidence of the fact, according to his view, consists in the character of the personality of Jesus, the Incarnation finding its proof in "the self-revelation of a person to persons," who were so impressed by the revelation that they accepted the divine origin of their Master as a fact which they afterwards proclaimed to the world. The evidence is thus spiritual and was addressed to spiritually-minded persons, but the author admits that the working of miracles was "an integral element in the total impression which He produced." It was, indeed, a very important element in the eyes of the ordinary multitude, and to disprove the miracles would have been a serious bar to the success of the mission of the founder of Christianity, the continued existence of which is the strongest argument in its favor. Miracle has given place to prophecy, for, as Mr. Illingworth says, "after overcoming the world for nineteen centuries, in the precise way that He foretold, the power of Christ is as strong as ever upon earth to-day. This, then, is our modern equivalent for the signs and wonders of an earlier age.'

Nevertheless, it by no means proves the fact of a divine Incarnation's having taken place. The teaching of a unique doctrine, such as "God is love," supported by the performance of acts, such as curing the sick by a touch or a word, which were out of the *ordinary* course, although not miraculous, would have been at-

tended with the result which actually occurred, if the time had arrived for the spiritual seed to be sown. There is really no evidence in support of what Mr. Illingworth rightly speaks of as the foremost miracle recorded in the Gospels,—the virgin birth of Christ. The Incarnation is made to support this miracle, as well as to sanction the sacraments of the Church, which it will do if it is an actual fact, and we are thus carried back to the original point, the immanence of God in nature that is, in the material world. If the truth of this can be established, then there is no difficulty in believing that the divine Spirit instead of merely pervading matter in general came to manifest itself particularly in organic existences and afterwards more especially in mankind as the culmination of the development of animal life Finally the manifestation of the divine spirit might occur through a particular individual, and such a person would be properly regarded as a divine incarnation; but it is evident that the event having been gradually brought about would not possess the supernatural character required by the Christian doctrine of Incarnation. Indeed, all men must under such circumstances be considered incarnations of divinity, and this would seem to be the legitimate inference from the doctrine of divine immanence as interpreted by the light of the theory of evolution. Such a view would hardly be acceptable to Mr. Illingworth, however, as it would leave no room for the miraculous in connexion either with the Incarnation or with succeeding events, and therefore the fact would be valueless as evidence of the supernatural character of Christianity.

Mr. Illingworth's work is an ingenious attempt to reconcile Christian teaching with scientific thought through the intermediary of the idea of the immanency of God in nature, and although we do not think he is successful, his argument deserves attentive consideration, which the clearness of his style renders easy. In an Appendix the author deals with the questions of Personal Identity and Freewill, but it cannot be said that he has solved the problems they involve. C. S. W.

THE STORY OF THE MIND. By *James Mark Baldwin*. With Illustrations. New York: D. Appleton & Co. 1898. Pages, 232+vii. Price, 40 cents.

The Library of Useful Stories, in which the present booklet appears, is published by D. Appleton & Co., and is a series of cheap little manuals designed to give in a very concise and simple form the results of the most recent research in science, philosophy, etc. The books are eminently adapted for general reading, and will especially serve a useful purpose in the collateral work of academies and high schools. The series now embraces some thirteen numbers, bearing such titles as "The Story of Photography," "The Story of Life in the Seas," "The Story of the Earth's Atmosphere," "The Story of Extinct Civilisations of the East," "The Story of Electricity," "The Story of a Piece of Coal," "The Story of the Solar System," "The Story of the Stars," "The Story of Primitive Man." The popular and attractive character of the volumes may be learned from a glance at *The Story of the Plants* by Grant Allen, in which such chapter headings as the following

occur: "How Plants Eat," "How Plants Drink," "How Plants Marry," "Various Marriage Customs," "How Flowers Club Together," "What Plants Do for Their Young," "Some Plant Biographies." The language of Mr. Allen's book is suited to the comprehension of unscientific readers; technical terms and minute detail have been avoided; and the author treats his readers not as children, but as men and women endowed with the average amount of intelligence. In this way he has imparted to his treatment a philosophical and ethical coloring which is missing in the usual elementary work.

In *The Story of the Mind*, Professor Baldwin has epitomised the views with which philosophical readers are familiar from his larger works, and has endeavored to maintain as much simplicity in his presentation as he thinks the subject admits of. That it could not have been done more simply, is his firm conviction: "To attempt to make the matter of psychology more elementary than is here done," he says, "would only result in making it untrue,"—a point in which we cannot agree with him. As to the general scope and contents of the story, he has "aimed to include enough statement of methods and results in each of the great departments of psychological research to give the reader an intelligent idea of what is being done, and to whet his appetite for more detailed information." There are ten chapters which bear the following titles: "The Science of the Mind—Psychology," "What our Minds Have in Common—Introspective Psychology," "The Mind of the Animal—Comparative Psychology," "The Mind of the Child—Child Psychology," "The Connexion of Body with Mind—Physiological Psychology—Mental Diseases," "How we Experiment on the Mind—Experimental Psychology," "Suggestion and Hypnotism," "The Training of the Mind—Educational Psychology," "The Individual Mind and Society—Social Psychology," "The Genius and his Environment." At the end, a brief but useful bibliography has been given of kindred works.

It will be seen from the enumeration of the chapter headings that Professor Baldwin has used much material from his investigations on child psychology, and it will be found that he has also offered much good advice on the education of young children. Great stress has been laid upon "social heredity," the meaning of which has been made very clear, and the rôle of imitation in social action has been emphasised. The spirit of the book is a wholesome one. *p.*

DAS PFERDEBÜRLA. Tagesfragen beantwortet von *Friedrich Max Müller*. Berlin: Verlag von Gebrüder Paetel (Elwin Paetel), 1899. Pp., 267.

This volume is a handy reprint of several articles which Prof. F. Max Müller wrote some time ago for the *Deutsche Rundschau*. It contains a letter which the Oxford scholar received from an anonymous German-American reader, signing himself "Das Pferdebürla," or "Horse farmer," whose admiration is mixed with doubt as to the radicalism of his famous countryman's philosophy. The answer given to the Pennsylvanian farmer embodies in very popular language Prof. F.

Max Müller's *Theory of the Self*, which is substantially the same as the old Brahman doctrine of the Atman; and our readers may still remember that we published an article on the subject in *The Monist*, Vol. 8, No. 1, under the title "Professor F. Max Müller's Theory of the Self. The Pferdebürla." As our arguments for rejecting Professor Müller's theory are still unrefuted, there is no need of repeating them here.

The pamphlet presents a neat appearance, but, according to German fashion, it has neither index nor table of contents, and the reader is therefore always obliged to reread the whole booklet in order to know whether a page is written by the Professor, or one of his critics.

We hope that for the benefit of theosophists and students of the Vedanta, whose number is legion in this country, some enthusiastic publisher will bring out an English translation of this Pferdebürla controversy. P. C.

LOGIC DEDUCTIVE AND INDUCTIVE. By *Carveth Read*. London: Grant Richards. 1898. Pages, 323+xvi. Price, 6s.

Mr. Carveth Read has written a treatise upon logic, in which psychology and the theory of knowledge have not been considered. The works from which he has drawn his inspiration have been Mill's *Logic*, Professor Bain's *Logic*, Dr. Venn's *Empirical Logic*, and Dr. Keynes's *Formal Logic*. He also acknowledges his indebtedness to Mr. Bradley, Mr. Sidgwick, Mr. Bosanquet, Professor Sigwart, and Professor Ueberweg. The treatment, while by its nature of a stereotyped character, is still original in its presentation, and does not descend to the trivialities and hair-splittings which characterise the old manuals. Indeed, the author has strenuously endeavored to inject something of levity and humor into the dry bones of his subject, and has thus shorn it of much of its repulsive character. There are twenty-four chapters devoted to such subjects as Propositions, Terms, Immediate Inferences, Syllogisms, Abbreviated and Compound Arguments, Induction, Causation, Hypotheses, Laws, Probability, Fallacies, etc. Typographically the book makes a prepossessing appearance. μ.

DIE WELTANSCHAUUNG PLATOS. Dargestellt im Anschlusse an den Dialog Phädon. Von *Dr. Gustav Schneider*, Professor am Fürstlichen Gymnasium zu Gera. Berlin: Weidmannsche Buchhandlung. 1898. Pages, 138. Price, Marks, 2.40.

Professor Schneider of Gera, well known by previous writings on the world-conception of ancient Hellas, presents us in the present booklet with an analysis of Plato's Phædon, which will be welcome both to professors of classical philology and to philosophers. It is a book well adapted for the Prima, i. e., the first class of the German Gymnasium, and would, if translated into English, be a welcome study for students of Plato in our colleges. The book shows Professor Schneider's enthusiasm for his subject. The author does not intrude his own views

of the soul upon the reader, yet he does not withhold the necessary criticism which will enable a student of Plato to form an independent opinion concerning Plato's ideas of the soul, transmigration of the soul, and immortality. κρς.

UEBER DIE GRUNDVORAUSSETZUNGEN UND CONSEQUENZEN DER INDIVIDUALISTISCHEN WELTANSCHAUUNG. Von *Wincenty Lutoslawski*. Helsingfors: J. Simelii Erben. 1898. Pages, 88.

This pamphlet of eighty-eight pages develops the philosophical system of our Polish philosopher-friend and contributor, Prof. Wincenty Lutoslawski. The subject is by no means exhausted. The article contains a fair exposition of individualism, of its sources and ultimate consequences, as contrasted with the theory universalism. Two sentences may be sufficient to explain the contrast.

"According to individualism, truth exists only for a single subject, and has application for all other subjects in the same phase of evolution. According to universalism, the truth is independent of the single subject, as knowledge of God which is unfailing and admits of no progress." P. C.

CALVIN LE FONDATEUR DES LIBERTÉS MODERNES. Par *E. Doumergue*, Professor la Faculté de Théologie Protestante de Montauban. Montauban: J. Granié 3 Avenue Gambetta. 1898. Pages, 31.

This sketch is an address delivered before the Faculty of Montauban, in France, the well-known Protestant university of the French Huguenots. Dr. Émile Doumergue, one of the professors in the college, points out that Calvin's importance as a liberator lies mainly in his views of political economy, where he emphasises the idea that work is a divine institution, that the industries are as honorable as agriculture, and that the assurance of salvation can be acquired only by good works, since they are the fruit and testimony of our faith. He says that France is in need of Calvin now more than ever, and we are inclined to believe that he is right. P. C.

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THE MONIST

A STUDY OF JOB AND THE JEWISH THEORY OF SUFFERING.

THE book of Job is the master-work of Hebrew Poetry. It is the natural product of the Hebrew spirit and theology and the Hebrew conception of nature. It is the culmination, at the point in history where it is found, of the genial aptitudes of the Hebrew religious spirit plus the particularism of Semitism,—of these two confronted by the observed and observable facts of experience. It has a history of development which robs it of all uniqueness as a thought-product. It is begotten, not made,—begotten in a land and in the midst of a people who were intensely religious, devoid of any profound knowledge of the operation of natural law,—among whom, indeed, the concept of natural law was excluded by the belief, which was more than a working theory, in a constant and immediate divine intervention,—begotten in the heart of a people who were plumb at every point to the most august spirit of independence.

The mediæval and modern Jew who cringes to power and fawns for friendship is a development, not a creation,—the product of the Ghetto, not the free-born of Judæa. The ancient Hebrew, like the ancient Semite, everywhere challenged regard. In the hour of conscious right he flung defiance in the face of despots and hurled his anathemas and his spear against the overwhelming might of imperial Babylon and Rome.

The spirit of the Jew is in Job,—Job, who all his life feared his God and now defies him. The voice of conscious integrity within could not be silenced. We are here with a spirit remarkable for an age when knowledge was in its twilight, and that broader conception of *a universe*, with all its implications, was unthought,—that conception which has robbed human souls of the terrors of the Unseen by enshrining deity within them.

Job in his defiant moods is an ancient Laertes as he is described in George Eliot's *College Breakfast Party*. "What to me are any dictates, though they came with thunder from the Mount, if still within I see a higher Right, a higher Good compelling love and worship? Though the earth held force electric to discern and kill each thinking rebel,—what is martyrdom but death defying utterance of belief, which being mine remains my truth supreme, though solitary as the throb of pain lying outside the pulses of the world? Obedience is good: ay, but to what? And for what ends? For say that I rebel against your rule as devilish, or as rule of thunder-guiding powers that deny man's benefit: rebellion then were strict obedience to another rule *which bids me flout your thunder*." The same voice that speaks here speaks in Job. In Laertes it is intellectual and Faustian, in Job it is religious. In both it is the ethical imperative that asserts itself. It is the compulsion of an inner law of Right,—the behest of a commanding truth uttering itself with unmistakable and imperial authority from the very throne of the soul itself. Such an authority upon such a throne is regnant over all moral action. To disobey it, whatever other voices may demand audience, whether coming from earthly or heavenly conclaves, were to bring swift damnation by dealing a paralysing blow at the ethical consciousness. Job and Laertes do not differ in their ethical attitudes. Job insists upon personal integrity, and he cannot deny his own inward sense of right. To do so would be to unsheathe the sword of his own scabbard with suicidal result. If Jahwe (Jehovah), his God, is to be justified by his admission of guilt, by self-condemnation despite the inward sense of perfect rectitude, then the voice within must rise imperious in the maintenance of its personal rights and

Jahwe must needs justify Himself in the presence of this ethical imperator. Job felt what Schiller later wrote:

> "For, by the laws of spirit, in the right
> Is every individual character
> That acts in strict accordance with itself;
> Self-contradiction is the only wrong."

The self-reliant, independent spirit of the old Hebrews, natural to them as a part of their Semitism, fostered by the vicissitudes of their history, and by their religious belief in the national protection of Jahwe, is one of the elements which may not be ignored in any serious effort to discover the causes of this literary work. We do not affirm a spirit of independence and consciousness of moral right unique among the Hebrews. It is, however, especially strong among them. The prophets are its first and great exponents; John the Baptist, and Jesus, and Paul died in maintaining their spiritual freedom. These were Ajaxes defying the lightning. Prometheus who believes that Zeus has withheld his gifts from his people shows it in his theft of heavenly fire for human benefit. Foreknowing well his doom, he opposes the will of Zeus in obedience to the higher law of benevolence within. We have it in Socrates; and Faust, standing on the vantage-ground of new ideas of physical law, cuts clean athwart the doctrines current in his age. Self-assertive independence which faces the frowns of traditionalism, maintaining the right to determine for itself its own actions and beliefs, is the potent force in all the revolutionising and progressive works of literature. It varies in degree, but exists among all peoples. In proportion as it possesses a people, it makes of them ministers to the progress of civilisation and knowledge. It is precisely to those peoples among whom it has been most potent—the Hebrew, Greeks, and Anglo-Saxons—that we find we are most indebted when we come to take account of our intellectual and spiritual stock.

Another element entering into the causes which operated, or rather conditioned, the production of the Book of Job was the Semitic dogma of the relation between sin and suffering,—between individual righteousness and individual prosperity, national infidel-

ity and national failure. Between God and man there was no intermediary. The doctrine of Secondary Causes, brought in by the Greeks, was unknown. There was no law which worked out its unerring results and which God Himself might not transgress without inducing a cosmical and moral cataclysm. They did not know the law of gravitation could not be suspended without destroying the universe, because they did not know the law. God was to them a despot,—a good despot on the whole, especially to the Jews whom He had chosen as His favorites. His will was fugitive, whimsical, irrational. As God's people, if they suffered, God sent the suffering because they had sinned. All the good and goods of life were, in a strict sense, of His immediate bestowal. All the calamities and woes of life were punishments sent for disobedience or transgression. Listen to the inquirer of Jesus, "Who *did sin*, this man or his parents, that he was born blind?" Virtue *was* not its own reward, but *brought* its reward as an external thing, conveyed from without, not reached from within by bringing the soul into harmony with its own ideal.

The experiences of men were forcing into the foreground of thought other ideas. Long before the Book of Job was written there probably had been current in popular tradition the story of "the good and upright man" "who feared God and eschewed evil," and yet in the end had gone down in the overwhelming loss of family and property and fell himself the victim of a foul disease. History had taught them the same lesson.

The most pious king that had ever sat upon the throne, Josiah the son of Amon, had been abandoned in the day of his trouble. More than any other king he had shown himself zealous for the pure worship of Jahwe and used his utmost energies to abolish idolatries and superstitions. He decreed the destruction of the "higher places," the removal of images, abolished foreign cults and local sanctuaries and altars, and centralised worship in Jerusalem in entire obedience to the law book of the temple. And where was the reward? What was the end? He fell unprotected in the hour of his need in that fatal battle with Pharaoh-Necho in the plain of Esdraelon. Where was Jahwe then, and why did He not come to

his rescue if this Jewish theory of the miseries, sufferings, and ills of life gave an adequate explanation of Jahwe's relation to the world? Clearly, it was insufficient.

And we are not left here to conjecture the effects of these experiences and observations upon the Jewish people. We know distinctly from the prophets that there were some who denied this doctrine *in toto* and pointed to the well-known facts of history to justify their infidelity. Ezechiel heard the complaint oft repeated by pious lips, "The way of Jahwe is not right!" And the Jews who were in Egypt with Jeremiah (see Cap. 44) replied to his persuasions and threatenings. "As for the word which thou hast spoken unto us in the name of Jahwe we will not hearken unto thee, but we will certainly do whatsoever thing goeth forth out of our own mouth, to burn incense unto the queen of heaven and to pour forth drink-offerings unto her as we have done, we and our fathers our kings and our princes, in the cities of Judah and in the streets of Jerusalem; *for then* had we plenty of victuals and were well and saw no evil, but since we left off to burn incense to the queen of heaven and to pour out drink-offerings unto her, we have wanted all things and have been consumed by the sword and by famine. And when we burnt incense to the queen of heaven and poured out drink-offerings unto her, did we make her cakes to worship her and pour out drink-offerings to her without our men?" The worship of Jahwe they claimed was no better for them than the worship of the foreign goddess. While they worshipped the latter they were prosperous and happy, and their fellows and husbands instead of being slain in battle lived secure with them in peaceful homes and joined with them in their sacrifices. These observable and simple facts of experience and plain records of history must have been as patent to the profound believer in Jahwe as to these sceptical idolaters. The question must have presented itself to thoughtful minds: "Were the times and the nation so utterly corrupt and bad when Jerusalem was destroyed?" History said "No!" Though not free from idolatry the times were never better, and yet the storm of Babylon broke upon them and crash upon crash the walls of Jerusalem fell in heaps and Judah was desolated.

To overcome this conviction wide-spread among the people, Ezechiel found it necessary to construct a theodicy; Jahwe's ways had to be vindicated. A rapid survey of Israel's history is made and the conclusion reached that it is written in wrongs from first to last. Sodom even when compared with Jerusalem was less abandoned, and Samaria and the heathen were far more preferable.

Still doubt of the old dogma had found a place in the ethical consciousness and once lodged there it could not be uprooted. Men had come to that stage of experience and reflexion where, while they acknowledged that sin was the direct cause of much evil, it was, nevertheless, not admitted to be the cause of all individual and national suffering and misfortune. This, then, is another of the historical facts in the development of the people which must be borne in mind in accounting for the appearance of this sceptical work in Hebrew literature as well as in every attempt to interpret it.

A third element which enters into the book and which gives to it one of its great charms is its descriptions of nature. They cannot be surpassed in literary charm. They have been given once and they can never be given again, because we have emerged completely out of the old mythical ideas of nature which underlie them. With our advance in science and our spirit of philosophical analysis, our conceptions of an orderly and ordered universe, nature has taken on for us new mysteries but she has lost her pale prodigies and old marvels. The spirits of the air are lost in a vanished night, the waters beneath are robbed of their leviathans and *Ungeheuer*. Cloud-mists scaling the mountain side no longer rise as furious giants to scale the battlements of heaven and storm the gods in their Olympian citadel. The heavenly constellations, still "Great" and "Little Bears," once mighty potentates and fierce monsters warring against the God of heaven, but conquered and bound in chains in their respective places, are now star worlds not unlike our own. Orion needs no chains. The dragon Rahab and the serpent are no longer, "as in the ancient days and in the generations of old," "cut to pieces," like the *rîbu Tidmat* of Babylonian myth, to build or decorate the firmament. These and all the rest of the old mythologies which still held sway over oriental minds

when this book was written have been so far left behind us that few readers of the Old Testament know even what are referred to. The sky is "unpropped," as the Indian sage sang. Its Babylonian and Jewish "pillars" have fallen. As the great spirits have become a vanished race, so the stars no longer "clap their hands for joy," and the sun has ceased to create visions of a "strong man rejoicing to run a race." What a world! What a time to live in! Up in heaven Jahwe held his counsels—a kind of Olympian conclave—angels met with him and *Satan* appeared in the assembly. Jahwe had swift winds and lightnings for his messengers, and special ambassadors were sent on supreme errands. The memories were still vivid of olden days when the Titan monsters rose rebellious against God. Eliphaz knows of them, and Job in his defiant mood recalls them to him:

> "Wilt thou keep to the ancient path
> Which the wicked men have trod?
> Who were speedily cut down,
> Whose foundations were poured out as a flood;
> Who kept saying to '*El* (God): 'Depart from us!'
> And: What can *Shaddai* do unto them?
> And yet had He filled their houses with good things."

Job knows them, too. In 16, 14 he complains that Jahwe has treated him like one of them. "He breaketh me with breach upon breach."

In an age when the ocean-deeps could be looked upon as a female monster, and falling stars were discordant angels hurled from heaven, the imagination was quite capable of peopling the earth with a race of demons. All such ideas endure long after a people have arrived at a stage of development wholly inconsistent with them,—endure though doubted, and even consciously rejected, yet unconsciously propagating the memory of themselves in the literary forms and figures of thought which always finds itself more or less dominated by the "old ways." We are not surprised, then, to find these and other kindred ideas wrought into this poetic work. It is precisely this simplicity of the age which made all nature a

living thing, capable of seeing, feeling, and "groaning together," which lends to the book so much of its poetic charm.

WHO WAS JOB?

The book of Job is not the history of a person. It is the record of an idea. It presents a phase of scepticism such as is invariably engendered by an imperfect, too devout, and unreasoned faith. Job in Hebrew means simply "the attacked." Whether such a person as Job lived or not, we have no means of determining, but that a tradition, or tale, of *a* righteous man who met with great misfortune, had lived, we are perhaps compelled to assume. Such a tradition, which may have been wrought into the form of a prose narrative at an early period, may have been taken up by the poet. In the simple and slender story of "the good man in the land of Uz" the poet saw the way prepared for a completer tale in whose telling he could engage all the attractions of Hebrew verse and into which he might pour all the ferment of ideas that were stirring within his own soul. The earlier story may have served our poet just as the *Volksbuch* served Goethe for the framework of his Faust and just as the latter unconsciously in other parts and consciously in the *Prolog im Himmel* drew from the Book of Job. We have nothing left of this popular tale if it ever was reduced to literary form except the prologue and short epilogue. The remainder of it was dropped, and the poet added his own creations to the narrative part.

The history of the imaginary events are confined to extra-Israelitish territory, and consequently the name of the national God Jahwe is carefully omitted. It occurs only in portions conceded by many to be corrupt. The other divine names, *El*, *Eloah*, *Elohim*, *Shaddai*, are chosen. For the same reason, viz., the non-Israelitish setting of the work, no reference is found to Israelitish law and ritual.

THE AGE OF THE BOOK AND ITS PURPOSE.

It is probably not earlier than the exile. There are still those in our midst who speak of it as "one of the oldest works of litera-

ture,—a statement which proves more in respect to the tenacity of old views than to the age of our poem.

With reference to its object much has been said, and scholars are not yet agreed. Cheyne says, "I would entitle it, 'The Book of the trial of the righteous man and of the justification of God.'" Dr. Davidson of Edinburgh in speaking of the idea and purpose of the book writes: "The book of Job, as we possess it, conveys the impression that it is a finished and well-rounded composition. Its form—Prologue, Poem, and Epilogue—suggests that the writer had a clear idea before his mind, which he started, developed, and brought to an issue, in a way satisfactory to himself . . . . the author being assumed, however, to have a distinct idea, this idea still remains so obscure, and the question: 'What is the purpose of the book?' has been answered in so many ways, that a judgment regarding it must be put forth with the greatest diffidence."

We must assume that the suffering hero gives expression, in his rebuttal of the quasi-arguments advanced by his opponents, to the poet's own views. The antagonists are all agreed in their doctrine that sin and suffering are invariably connected as unholy cause and effect. Suffering cannot reign where there has not been previous sin, conscious or unconscious. If Job has not been guilty of wilful and open sin, then there must have been unconscious and secret sin. The purpose of the book of Job, so far as its main contention goes, is to show that this teaching in the Jewish doctrine of hamartialogy is wholly inadequate to the explanation of the facts of human experience. Job presents himself as a case of suffering, and so conscious is he of his purity that not even God himself could wrest from him a confession of guilt; and God ultimately commends him. Besides his own case there are instances sufficiently numerous, Job points out, of notoriously wicked men whose lives are hedged about with prosperity and the end thereof crowned with peace.

This doctrine of sin was as prominent among the Hebrews as the contemporary doctrine of Jahwe's special guidance which issued in the Jewish ideas of the theocracy. The prophets who were far beyond their contemporaries, both within and without Judah and

Israel, in their theology never rose above it; but Jesus refuted it: "Neither did this man sin nor his parents, but that the works of God should be made manifest in him." All the woes of the nation were ascribed by every prophet in turn to Jahwe's anger because he was forsaken. The purpose of the book will be made clearer when we have made a survey of its contents. If, however, what has already been said as to the main historical cause be supported, this will not exclude the *possibility* that the work has a secondary purpose, based upon the establishment of the untenableness of the old dogma, of consoling the nation as a whole in the multifarious calamities which befell them. There still remains the divine moral purpose in suffering,—the testing and edification of the righteous by adversity, but this is nowhere clearly predicated. Besides these ideas, and incidental to the discussion, the limitations of human knowledge are enforced.

THE LITERARY FORM OF THE BOOK.

Is the Book of Job an epic or a drama, or is it more distinctly a didactic poem? I prefer to place it in the category of didactic poems. Many writers, however, are pleased to regard it as a drama, and it certainly is not lacking in dramatic elements. It has its *dramatis personæ*, we may say, plot, and denouement, but the *finale* is not the necessary consequence of the preceding action. The question of evil is not definitely answered; at best Job is acquitted of the charge and justified in his antagonism to and refutation of the old dogma. That evil may find its explanation in a sphere above and beyond human ken is intimated in the book, but the explanation is *not* given but postponed. Omitting the minor forms of the drama, melodrama, lyric, etc., and rejecting the second great division, the comic, there remains only the tragic with which the work has certain distinct affinities. The mental or spiritual situations are intensely tragic, but the happy issue is not in harmony with a tragic play. When compared with Prometheus with which in many respects it has generic affinities, it, nevertheless, fails to show the same distinctively and decisively dramatic elements. In the Greek play the situation is beyond dispute. There

is a definite act—fire is stolen from heaven for human benefit, contrary to the will of Zeus. Prometheus foresees the consequences and accepts his doom. In Job all is uncertain—*the act* is dogmatically inferred by his opponents from supposed results, and a plot against the unwitting victim is secretly made in the heavenly conclave. Prometheus acts consciously and defiantly and knows the cause of his suffering. In so far as they show the same vehemence of invective against their respective gods, Prometheus and Job are alike—they are different in that the former is enlisted in the interest of humanity, the latter in the defence of his integrity.

ANALYSIS OF THE BOOK.

The book consists of five parts:

(1) The prologue written in prose, Caps. 1–2; (2) the colloquies or dialogues between Job and his three friends, Caps. 3–31; (3) the discourse of Elihu, Caps. 32–37; (4) Jehovah's answer to Job, Caps. 38–47: 6; (5) epilogue in prose, 47: 7–17.

In the prologue Job is represented as a great Arabian Sheik dwelling in the land of Uz. He is a worshipper of Jehovah, who in the heavenly council declares that "there is none like Job on the earth." On account of his virtue he has been the recipient of the greatest of earthly blessings. He is a great Eastern Emeer, with a large family and possessions. Job is scrupulously pious. After the great family festivities, moved by fear that in the midst of their rejoicings they may have committed some inadvertence or sin, he was wont to sanctify them and present burnt offerings. We are introduced into the heavenly conclave in verse 6. The sons of *Elohim* enter the assembly. They are supernatural beings of a lower rank than Elohim, and were probably primitive rebellious Titan spirits who were ultimately made subject.

The phrase "sons of God" (*bene Elohim*) is not descriptive of their office, but of their nature. In their midst appears the Satan, or accuser, who is in the service of Elohim as a moral censor of the human race. He has just completed one of his customary rounds of inspection of the world and returned on high. Presumably he has been telling in the heavenly conclave what a bad place

it is, and Jahwe directs his attention to Job: "Hast thou considered carefully my servant Job, for there is not his like in the earth, a man perfect and upright, who feareth *Elohim* and turneth away from evil?" Satan, bent on mischief, asks whether Job's virtue is not mere selfish interest. "Is it for nought that Job fears Elohim?" Jahwe delivers Job to Satan to test him and permits him full exercise of his malevolent power. One after another Job's flocks are destroyed, then his servants, finally he is bereft of his children. His wife who is to play the rôle of a tempter is, "with grim humor," spared to him. With calmness and resignation Job weighed his sorrow and said, though despoiled of all, he was as well off as when he entered the world naked at his birth. When the Satan enters the assembly a second time Job is extolled as superior to his worst assaults; and Satan replies that his failure was due to Job's unmeasured selfishness. He was willing to sacrifice everything if his own life were untouched: "all that a man hath will he give for his life." Put forth thine hand and touch his bone and his flesh and he will renounce thee to thy face. Satan is then allowed to afflict him in his person as he will, on condition that his life be not wholly taken. Job is then afflicted with a loathsome form of leprosy. His wife taunts him with his integrity and calls upon him to curse God and die. Yet Job sinned not; but reproved his tempter in words of patient fidelity: "Shall we receive good at the hand of God and shall we not receive evil?" When these elements of the plot are introduced Satan disappears, and the rest of the book centres about his behavior under his dire misfortune and his steadfast maintenance of his integrity in opposition to his accusers. He does not know that he is on trial, or that Satan's accusation is the mediate occasion of his affliction and he the direct cause. He ascribes everything to God. The position is distinctly tragic. All the powers of good and evil have consented to test to the uttermost a mortal's integrity, and he knows it not. Job, therefore, faces the problem as a modern might who has lost faith in the devil's existence. The situation is simpler, but for superficial thought less solvable.

It is here that the inner tragedy of the book begins. Spoiled of his property, bereft of his family, his body as it were moth-eaten

by a foul disease, Job, the man of exemplary piety, applauded for it in the heavenly conclave by God himself, assails in unmistakable language the current dogma of the Hebrews which taught an invariable causal connexion between suffering and sin, prosperity and integrity. Notwithstanding his overwhelming misfortune and unbearable suffering he insists upon conscious rectitude and unimpeachable character. The discussion between Job and his friends falls into three groups of speeches, (1) Caps. 4–14; (2) Caps. 15–21; (3) Caps. 22–31. We have six speeches in each of the groups except the last. Elephaz first appears in defence of Jahwe and Job replies. Bildad next presents the case in favor of Jahwe and Job replies. Zophar follows on Jahwe's side and Job replies. In the same order of debate the three friends present their arguments in each group except in the last where Zophar is left speechless. The poet suggests that the opportunity was given again to Zophar, but he failed to return to the debate. After Job finished his reply (in Cap. 26) to Bildad's last brief reiteration of his position he seems to have anticipated the return of Zophar but was disappointed. Cap. 27, therefore, goes on: "And Job again took up his parable and said." The exclusion of the third opponent at this point is a fine intimation on the part of the poet that the contention of the friends was untenable and that Job would finally triumph. The briefness of Bildad's speech in Cap. 25 points in the same direction. He had exhausted his resources in the previous effort and hence had nothing important to add beyond what must have appeared to Job as a pious platitude about God's infinite greatness, and the *non-sequitur* that the stars must appear impure in his sight, *ergo*, man, who was only a worm at best, the unclean product of the impure σάρξ or flesh of woman, could not be pure.

We have here in this idea of the impurity of the flesh the old Hebrew notion of sin—the notion that is brought out forcibly in the apostle Paul's argument in his Epistle to the Romans, that there is something in the material flesh of man that is essentially sinful. It is a view of things which even Job himself admits in Cap. 14, where he asks, "Who can bring a clean thing out of an

unclean?" And it is to this idea of the impurity of matter that we owe the philosophical introduction to the Gospel of John.

THE SPEECHES.

Let us now return to the speeches. Job, after he is smitten with disease, which is rotting away his bones and skin, is presented sitting in ashes trying to find relief from the irritation of his body by scratching it with a piece of broken pottery, as many a poor leprous afflicted sufferer does at the present day in the Orient. Near Job on the ground sit his three friends amazed and stupefied. Their silence is both sympathetic and merciful. The poet has a double reason for leaving them in dumb thoughtfulness. In the midst of great suffering even the best-meant words of comfort or consolation may pierce the soul like iron. Their silence proves their humane and genuine feeling and Job's unspeakable suffering. Silent sympathies are the strongest, just as silent suffering is the most unendurable. These are "friends" and deeply sympathising friends, and by presenting them thus at the beginning the poet brings out more strongly their stubborn faith in their narrow creed when later they show themselves merciless in accusing him of secret sin, and in heartless chidings for his folly. That is the kind of faith which made Paul hold Stephen's coat while others stoned him, and which made inquisitors out of otherwise humane spirits. Whether or not the poet intended to emphasise the dehumanising effects of a narrow faith, the effect is certainly here by implication. Had they not felt for him so keenly they would have spoken before several days passed. They were not waiting to hear his first impatient complaint that they might have definite ground for attack, for they came expressly to comfort him. They were old friends and must have been closely knit to him as the result of his well-known conduct and character.

When Job at length speaks, his misery has mastered his first spirit of resignation. In words of violent indignation and despair he curses the day of his birth and wishes that it may be blotted out of the year's calendar, and that he had died at once from the womb. He prays that the night when he was conceived may be robbed

even of its glimmering twilight, and that the deep darkness may claim as its possession the day whereon he was born. (Cap. 3: 2–12.) This first outburst of Job brings him before us not as a reasoner or inquirer, but as a despondent sceptic. His life, previously untouched by ill and hedged about by happy circumstances, had not led him into those profounder regions of thought where its great antinomies of joy and sorrow, happy hey-days and death's shadows, call for reconciliation. Now the whole weight of these antagonistic problems of existence come upon him and he is crushed. His life was as inexplicable as it was unbearable, and he found no consolatory explanation. His religion did not even hold out to him hope for an explanation in another world, and he does not try to find one. The misery of life is beyond all plaint and endurance. He is suddenly a pessimist like Schopenhauer, and the poem is at one in this pessimism with all the sceptical dramas ancient and modern.

Job in this attitude of longing for release in oblivion and death is no longer a Jew but a member of the human family. He is at one with Prometheus in his reply to the chorus of the daughters of Okeanos when they came to sympathise with him as Job's friends came to him, when looking upon Prometheus "spiked down on chains upon the rock beneath the open sky" the chorus says: "I see Prometheus and a fearful mist steals o'er my two tearful eyes seeing how thy frame doth pine upon this rock, helplessly bound in adamantine chains." Prometheus answers just as Job has answered here: "Would that in Hades beneath or Tartaros unlimited, home of the dead where darkness reigns, he'd placed me."

This is the first impulse in all the sceptical dramas where there is overwhelming suffering. Faust in his frantic despair of knowledge, failing to achieve it by study and magic, dotes on the poisonous cup until he hears on Easter morn the words of the Easter anthem:

"Christ ist erstanden,
Freude dem Sterblichen,
Den die verderblichen,
Schleichenden, erblichen
Mängel umwanden."

Hamlet too, when the pressure of his surroundings forces upon him his inequality for the task which they impose, meditates on suicide and asks whether 'tis better "to be or not to be." To appreciate Job fully in his plight we must remember that the Jew was by nature ecstatic, joyous, sentimental. He had a rapture in living unknown to us of Saxon blood and Puritan heritage. Existence without happiness found no explanation or justification. He asks despairingly in this chapter of maledictions:

> "Wherefore giveth he to the suffering light,
> And life to those who are bitter of soul,
> Who long for death, but it comes not,
> Who search for it more than for treasure,
> Who would be glad unto exultation
> And rejoice should they find the grave?"

He is led by his own sufferings to raise the question in the name of all suffering humanity. Verses 20–26 of this third chapter give us the problem of the book. Why is life the gift of God made miserable? By raising the question *he pronounces it unanswerable.* He knows what the friends will say. They will fall back upon the old dogma, "suffering implies sin." He puts himself in direct antagonism to their view before they speak.

FIRST SPEECH OF ELIPHAZ.

Eliphaz is the first to take up the argument in support of the Jewish theory. He attempts to conciliate Job with fair compliments after suggesting that it is with a certain delicacy of feeling for him in his trouble that he ventures to discuss the subject at all. "If one essay to speak with thee wilt thou be displeased, but who can withhold himself from speaking?" "Thou," he says, "hast instructed many, thou hast strengthened the weak hands, and upholden him that was falling. Now that it toucheth thee, wilt thou, wise counsellor, great *consolator*, faint and be troubled?

> "Is not the fear of God thy confidence,
> And thy hope the integrity of thy ways?"

Experience teaches that such confidence is well founded, for

"Think now who ever perished being innocent,
Or when were the upright cut off?"

Eliphaz points out that the great law of nature that like produces like is verified in his own experience as applicable to human conduct.

"According as I have seen they that plowed iniquity
And sowed trouble reaped the same.
By the breath of God they perished,
And by his anger-blast were they consumed."

More than this, he has been visited in the night by a spirit who held secret communion with him:

"There was silence, and I heard a voice:
Can man be just before God?
Can a man be pure before his maker?
Behold He trusteth not in his servants,
And His angels He chargeth with folly:
How much more them that dwell in clay houses!"

Were Job to appeal against God to some of the angels for deliverance from this state of moral inability and consequent suffering, he would only aggravate the case and vex himself unto death. He is bidden again to remember that affliction does not come uncaused.

"For affliction cometh not out of the dust,
Nor doth trouble sprout forth from the ground."

The implications of Eliphaz's words are that whatever Job may think of his own innocence, innocent he cannot be. Man is a sinful creature, and no one is so perfect before God that he can claim exemption from suffering. He says in substance God's law of action is grounded in goodness. "If he makes sore, he also binds up." He urges Job to submit to the chastening, and all that he has lost will be restored and he himself delivered. Even nature shall be in league with him, and he shall come to his grave in peace and in a full age.

This speech of Eliphaz is adroitly put, but Job in his reply (in Chapter vi.) implies that the argument lacked cogency, because it did not meet the demands of the case. Eliphaz has based his rea-

soning on human imperfections in general, and such unusual sufferings as his could not be explained by referring them to the common defects of the race. He is wholly unconscious of guilt, and yet his sufferings are exceptionally severe. The speech of his friend has ignored this most essential point. By treating his unparalleled sufferings as though common troubles, arising from common causes, he has increased them. Job, therefore, impatient of his consoler, cries out:

> "Would that my displeasure were thoroughly weighed,
> And my destruction balanced (with it) in scales!
> For now it is heavier than the sand of the sea:
> Therefore my words do stammer."

Violent as his words have been, and he admits this, his displeasure has been in no sense commensurate with his wretched plight. If he has been violent, it is because his spirit has been poisoned by the poisoned arrows of the Almighty. Eliphaz has drawn his analogies from nature to prove his point; so can he. Has he not cause for his vehemence? Does the wild ass go about braying when he has grass to eat? Does the ox stand bellowing over a full crib? Job's vehemence comes from violent abuse; consequently he does not set his hope in future good fortune, but in death. Were a future release to be hoped for, or had he strength to endure, he might repress violent words.

> "What is my strength that I should hope,
> And what is my end that I should prolong my life (for it)?
> Is my strength the strength of stones,
> Or is my flesh bronze?"

If God would only crush him out of existence, put forth his hand and cut him off, that were an act of mercy in which he would rejoice, for "never have I denied the words of the Holy One." This self-assertion, in the face of unbearable suffering, and its sublime self-conscious rectitude is truly Promethean. Conscious of omnipotent power which may do with him as it pleases, he refuses to yield his integrity. Like Prometheus, who knew that Zeus was unjust, Job feels that God is unjust and implies it, though he does not explicitly assert it.

Job now animadverts strongly upon the falsity of his friends, whom he sarcastically calls his brothers. He had a right to receive comfort from them, but they have cruelly disappointed his hopes as the treacherous brook-beds which entice the caravans of the desert only to leave them to perish with unslacked thirst. Let them *teach him*, and he will hold his peace. Thus far they have been no better than evil men who would gamble for the body of an orphan and sell their friends for gain. They have a theory to uphold and are ready to sacrifice his breaking heart to it, and he has discernment enough to understand them. Would they withdraw from him?—then be it so, rather than let injustice be continued in their accusations of guilt!

In Cap. VII. Job dwells upon the brevity of human life. He longs for the end of it, as the weary and sunburnt toiler longs for shadow of night. Besides his mental anguish his body is racked with pain, with ulcerous and worm-breeding sores, and his skin wastes in streams of corruption. Therefore, because life is short, he *must speak* in the anguish of his spirit and pour out all his complaint. With fierce invective he assails God. God has so little care for him that he no longer hesitates, as in Cap. III., to vent his feeling in fiercest speech.

> "So then I will not restrain my speech,
> I will speak in my distress of spirit,
> Will utter my wail in my bitterness of soul,—
> Am I a sea or a sea monster
> That thou settest a guard over me?"

He feels that God is dealing with him as though he were one of that old wicked brood of demons that He subdued long ago. The *tannîn* of the text does not mean "whale" (Av.) but refers to the destroying serpent of Babylonian myth. The unrestrained indignation of the sufferer in this chapter reaches in its expression the utmost limits of Titanic defiance, and the language is unsurpassed in power by any of the sceptical dramas. They are fierce utterances, as defiant as those of the Greek in his reply to the chorus when they suggest that Zeus may send him worse woes than he has, "Well, worship ye, kneel and cringe to him who rules. For me I

care for Zeus e'en less than nought, so, let him do!" They recall the equally defiant words of Faust:

"I reverence thee! For what?
Hast thou ever assuaged the pains of the suffering?
Hast thou ever stopped the tears of the sorrowing?"

Job does not say he will worship God no more; but his feeling has become for the time completely master of him. The common Jewish conception of God's gracious attributes are lost sight of, and God is daringly accused of injustice, cruelty, arbitrariness, malice, and meanest espionage. The poor victim of his omnipotent tyranny is not even allowed respite to swallow his spittle. Granting, though not admitting, that he has sinned, why, if He is a benevolent God, does He not pardon him? We must bear in mind that this outburst of scepticism is temporary, and induced by a revolt from a theology which pitilessly assaulted a good man in a state of intolerable suffering—a theology which in his inmost soul he felt was false. In rebelling against the theology he verged, as is often done in the seething times of the soul when it is called upon to modify its beliefs, too closely on rejecting God with the theology.

BILDAD'S SPEECH.

The next person in the debate and introduced in Cap. VIII. is Bildad. Unlike the adroit Eliphaz, Bildad is of coarse fibre. He has no prefatory compliment to make. On the other hand, he rudely and impatiently assails Job, likening his unchecked utterances to windy bluster.

"How long wilt thou speak such things,
And the words of thy mouth be a mighty wind?"

Bildad repeats the time-worn arguments on the subject of suffering. The source of all his sorrow is his lack of purity and uprightness (verse 6). He makes the usual accusation of the pietist against the thinker—pride in his own knowledge. Let him show becoming humility—go back *to the fathers* and learn of them what they have searched out. The modern form of Bildadism might be readily improvised somewhat as follows: "This body, by virtue of

its delegated authority, stamps with emphatic disapproval all utterances contained in the speech not in harmony with the standards."

What is this testimony of the fathers?—this, viz., that every effect has a cause, all results are consequent upon definite antecedents.

"Can the rush grow up without mire,
Or the reed-grass without water?"

Just as the rushes and the reeds wither when the hot sun and winds overtake them, so the wicked man when confronted by the search-rays of divine justice. Let him repent:

"Then will his mouth be filled with laughter
And his lips with joyful shouting."

Job in reply to Bildad's speech acknowledges all that he has said of God's might and of human inability to enter the lists with him. In a passage pregnant with power and rising to poetic sublimity he proceeds, himself, to declare God's omnipotence.

"He removeth the mountains and they know not
Who overturneth them in his wrath.
Who shaketh the earth from her place,
So that its pillars do tremble.
Who speaks to the sun, and it shineth not,
And layeth his seal upon the stars,
And stretcheth out the heavens by Himself,
And walketh on wave-crests of the sea.
Who created the Bear, Orion, and Sirius,
And the treasure houses of the South.
(Where the meteoric stars are hidden)
He hath done great things that are unsearchable,
And wonderful things without number."

Job is no more able to see Him when He passes by, than the mountains to note who shake them. No one need teach Job lessons on God's omnipotence and supremacy. He knows his power, and he knows that in the face of it he is helpless. *Eloah* does not withdraw his anger, and what can his puny strength do when the ancient demons who fought with the great dragon were with her compelled to bow before Him?

It is this omnipotent power which Job admits (as Prometheus

admitted the unlimited might of Zeus), which constitutes his despair. Submission to the tyrannous oppression is necessary, for "Who can say to Him: What doest thou?" He will not even allow him his breath, but filleth him with bitterness. It is not a question of merit or demerit, of piety or wickedness in such a case. God is irresponsible, and defenceless mortals have no appeal. Guilty or innocent—it is all alike to Him.

> "Though I were right my mouth *must* condemn me,
> Though I am innocent he maketh me perverse;
> I am innocent—
> I trouble not for my soul,
> I despise my life.
> It is all one, therefore, I say
> The innocent as the wicked he destroyeth;
> If the scourge slays suddenly,
> He laughs at the trial of the innocent."

There is a fiendish delight even in this despotic and evil government. Yes; God is omnipotent and He employs his omnipotence unscrupulously, and, therefore, the protesting of his innocence is useless. The idea here is not that of his friends and the usual idea of the Old Testament, viz.: that the omniscient may see evil even where there is a consciousness of innocence. This idea of absolute power ending in scrupulous tyranny is a distinct outcome of Jewish Calvinism—that idea of God which compares him with the potter and man with the clay in his hands which he moulds, uses, or breaks at will. When human freedom is submerged in the infinite, then in the face of ill God never can be other than despotic. Job says that God's acts are not determined by justice. He even shows favor to the wicked and *a fortiori* evil for the good.

The remaining part of the speech is tantamount to an accusation that He has created him and preserved him for a treacherous purpose, and it closes by referring to his birth with which his injustice began, and defiantly tells God to withdraw from him and to let him have "a little comfort" before he goes hence to dark Hades.

ELIPHAZ AND BILDAD COMPARED.

Let us look for a moment at the character of the interlocutors, for these are evidently chosen as types, otherwise the whole argument would have been more easily presented in a dialogue between two. We saw that Eliphaz approached Job as a courteous and well-bred gentlemen. He politely asks, as he enters upon discourse, whether Job would be grieved if he ventured to speak with him, and his first words are words of sincere congratulation. That which he had to say was drawn chiefly from his own experience, observation, and a revelation specially vouchsafed to him. The ideas he advances are all in support of his narrow dogma, but they are presented with as little harshness, perhaps, as was consonant with the strength of his convictions. If there was sore affliction, it undoubtedly had a cause which God in His omniscience could see though Job could not. A man might and ought indeed to feel happy under affliction, for it proceeds from benevolence and issues in exaltation. He casts a halo of glory over Job's future, if Job will but patiently submit.

There is no crudity here,—no unnecessary severity. We cannot help remembering that Eliphaz was from Temen, which, as we learn from other parts of the Old Testament, was the home of wisdom, a region blest with generations of cultured gentlemen. Eliphaz acts and speaks in full harmony with his antecedents of birth and privilege. While there seemed no necessity for severe language, he used none. In contrast with him we saw Bildad *the Shuhite* whose native place is unknown. He is a man from some obscure part who possesses none of Eliphaz's fine intuitions and exhibits none of his graces of good-breeding. His first words are grossly impertinent. He tells Job that he is a violent blusterer. He starts out with a series of provoking and insinuating *ifs*. *If* his children were all dead, they deserved it. God knows that. *If* he would seek God. *If* he were pure, instantly God would awake for him. Eliphaz reasoned from his experience and from his religious visions which he held to be revelations. Bildad taunted him with

accusations of pride and smote him with tradition. Eliphaz and Bildad, alike agreeing in their dogma, declare that suffering does not come uncaused. "Affliction does not come out of the ground," says Eliphaz. "The rush cannot grow without mire," retorts Bildad. They hold the same faith and are equally zealous in its defence, but how differently they approach their task. Bildad, it is true, had heard before speaking, and Eliphaz had not, Job's vehement arraignment of the Almighty and his titanic defiance of Him as an unscrupulous spier of men. But does this explain the difference between them, the one courteous and kind, the other offensive and vulgar, or must we remember, first of all, that Eliphaz was a Temanite, and Bildad a Shuhite? Bildad has all the narrowness of Eliphaz's creed and none of his urbanity, and intellectually he is a very mediocre character. I think we will not make a mistake if we credit the poet with a purpose in bringing these discernibly different characters upon the stage. Eliphaz is a representative of high birth, good breeding, cultured intellect,—an aristocrat, if you will, from Teman. Bildad represents the low-born wanting in those finer flavors of spirit which are won by persons of less favorable antecedents only when gifted by nature with fine perceptions and large mentality. He stands for the mass of the intellectually mediocre.

That Bildad was fitted to represent this class is, I think, clearly discernible from his speeches. They are for the most part stale platitudes, threadbare phrases without any stamp of individuality. Rusticity is writ large upon him. His range of thought is limited to rushes, and papyrus, and spider's webs in his first speech. His vision is confined to beasts, tents, gins, snares, and brimstone in his second. He speaks out of his past, and his tortoise brain exhausts itself in the end in a vapid valedictory of *ten* lines in which he says nothing which had not been infinitely better said before. Unfortunately his class is large. We are thankful to the poet who cut him off with *six verses* in his last speech, when he began to drivel about the unclean thing a *woman-born* man is, and to find his real counterpart in squirming worms, his perfect analogue in putridity, and worm-breeding putridities at that. His speech, Cap.

xxv. 6, is the only place in the Old Testament where the word rimma is metaphorically applied to man. The word means primarily that which is rotten, and is then applied to the *worms generated in putrid flesh.* Bildad may have had sterling qualities, but despite the pure air of the desert and the company of refined associates, the scent of vulgarity is on his garments, and his mind remains a monotonous and dreary waste. It was the penetration of artistic genius that made him an advocate of the old creed.

ZOPHAR THE NAAMATHITE.

This third interlocutor, who appears for the first time in Cap. XI., is less obscure than Bildad and evidently has better antecedents. He has some sublimity of thought and is naturally touched with a greater feeling of kindness. In point of character and ability he stands between Eliphaz and Bildad. He shares the universal conviction of the divine unfathomableness and human incapacity to understand the divine ways. But one-third of his speech is a poem of promise and consolation. His first words are an arraignment of Job for his vain and idle utterances. He has rendered a hasty verdict of injustice against God, and without comprehending his own limitations acted as judge and acquitted himself by denying impurity both in life and doctrine. Bad as his case has been if God should declare all the evidence he would see that his offences were not all weighed. Job cannot expect to know the real standing of the case, because he cannot explore the infiniteness of divine wisdom.

> "Canst thou discover the secret of *Eloah*,
> Canst thou find out the perfection of *Shaddai?*
> It is higher than heaven, what canst thou do?
> Deeper than Sheol, what canst thou know?"

Zophar's reasoning is this: The divine wisdom transcends all human knowledge. The divine acts are based upon divine wisdom; therefore the causes of the divine act, which produces suffering, cannot be humanly comprehended. But they lie clear to view in the transcendent knowledge of God. Zophar has hope, however, for the most foolish and violent.

"Even a vain man may come to understanding,
And the wild ass' colt may be tamed."

Therefore he, too, counsels repentance with promise of restoration:

"If thou prepare thine heart,
And stretchest out thine hand toward Him.
If iniquity be in thy hand, cast it forth,
And let not wickedness dwell in thy tents.
Even then shalt thou lift up thy face without spot."

God knows; man does not; submit, therefore, and repent, *for guilty you must be.* This is the *subauditur* that runs all through these illogical arguments.

JOB'S REPLY.

Job has now heard his three friends, and they have all asserted *his guilt.* They have appealed to natural law to prove that every effect has a cause. "Trouble does not spring out of the ground," Eliphaz said. "The rush does not grow up without mire," said Bildad. Tradition and experience, they say, connect sin and suffering as unholy cause and effect. Eliphaz and Zophar dwell upon God's omniscience, suggesting that He sees the sin of which Job is, perhaps, unconscious, but which nevertheless has caused his suffering.

Job insists in his reply that though his friends have spoken at length, they have mistaken metaphors for arguments and speech for wisdom. All they have said about natural law and divine omniscience, Job knows as well as they.

The whole course of reasoning has been in a circle. When analysed it is simply: Here is suffering. Suffering is always the result of sin. Therefore Job sinned. Job denies it, but that does not alter matters. Job does not know all that God knows. Their minor premiss is an assumption, but it is precisely this minor premiss that constitutes the whole question in debate. Job insists that his case disproves it, and, therefore, as a general proposition it must be abandoned.

According to Job they have haughtily laid claim to a superior

wisdom and contributed nothing to the solution of the perplexing problem. They have merely exhausted his patience with irrelevant statements and the commonest platitudes. And Job answered and said (Cap. XII–XIV.):

"No doubt ye are the people,
And wisdom shall die with you.
But I have understanding as well as you.
Who knoweth not such things as these?"

The whole creation rises up to teach them.

This conceit of wisdom on their part is nothing less than scornful reproach and cowardice. He is indignant and wounded by their trifling truisms which he has heard *ad nauseam*. They have been sheer mockery. But such is the way of the world.

"Contempt for misfortune from those who are at ease,
A thrust for them whose feet are unsteady."

More than this, God gives prosperity to the wicked and leaves robbers to dwell in peaceful tents. What remains then of their doctrine? Facts plain and palpable disprove it. The facts of nature prove divine wisdom and power. The hand of the Lord is visible in created things. Yea, "speak to the earth and it shall teach thee." But the question of a moral and beneficent and just power, these facts do not prove. Omnipotent power does not prove divine justice. Is God freed from suspicion, Job tacitly asks (15–25), when you consider how he uses his power?

"He turneth judges into fools,
He looseth the chains of kings (put on rebellious captives),
And puts a rope around their own waists.
He leaves priests (who serve Him) to be spoiled.
. . . . . .
He taketh away the understanding of the aged.
He increaseth nations and destroyeth them.
Lo! mine eye hath seen all this,
Mine ear hath heard and understood!
What ye know, I know,
I am not inferior to you.

Eliphaz had referred to his experience: "According as I have seen, they that plowed iniquity and sowed trouble, reaped the

same." If that is all, Job says, he has looked with the one eye that sees but half the world. Instead of there being strict justice in the moral government of the world, facts point to a malignant power and divine caprice. To bolster up the case for God by specious arguments, is proof, not of the spirit of piety, but of falsehood. The moral law forbidding respect of persons does not exclude God. They are false witnesses self-subpœnaed on God's behalf. They must be conscious of prejudice in His favor, "forgers of lies," therefore,

"Shall not His excellency make you afraid,
And His dread fall upon you?"

Job in these utterances proves himself, sceptic, pessimist, doubter as he is, the only truly religious one of the number.

In Cap. XIII., 13, in view of the worthlessness of their defence, he prays that they may leave him alone. With the intolerable weight of his sufferings there is a necessity of utterance, and utter himself he will, come what may. He will maintain his ways before him, though he knows he will slay him, and that there is no hope. (Not—"though he slay me, yet will I trust him.")

We have here one of the sublimest affirmations of the rights of conscience. Job measured the might of Omnipotence. It awed him, but it did not overwhelm him. There is something within, Job feels, that has a divinity of its own with which to face almighty power, viz., a conscience at peace with itself,—an unassailable rectitude. "My ways in His face will I justify." The thought of a moral victory elevates him for the moment above his suffering. God is addressed (verse 17 ff.) and the demand is made that his case be heard. He has prepared his statement and it must be heard at the peril of death. In the presence of deity he declares his contention: "I know that I am righteous." If God prefers the suit he will appear as defendant. It matters not.

"Call thou and I will answer;
Or let me speak, and answer thou me."

He demands that God shall show cause for treating him as guilty and that He shall come out into the light.

"Tell me what is my transgression and my sin,
Wherefore hidest thou thy face
And holdest me for thine enemy?"

Job is entitled to know what he is suffering for. But of course this cannot be, for God is punishing Job for the forgotten and unconscious sins of his youth. Rank injustice this, but it does not stand alone. God has put his feet in stocks and indulged Himself in exquisite refinements of cruelty, and has drawn a line about his feet so that he cannot move. And yet what is he—his body full of ulcerous sores—he is like a moth-eaten garment. Surely an unequal contest! Then comes a revulsion of feeling induced by the thought of omnipotent power venting itself on a defenceless creature done to death, and there is a reversion to the old pessimistic view of life. He dwells in Cap. XIV. almost fondly upon its vanity and brevity, just as one sometimes morbidly enjoys a great grief. Man's life is a fleet shadow, a frail flower. He has not even the hope of inanimate nature:

"For there is hope even for a tree,
If it be cut down it may sprout again,
. . . . . .
But the strong man dieth and passeth away,
And man expires, and where is he?"

At this point a ray of light breaks half way through the darkness. What if a man may live after death! What if God should choose to hide Job in dark Sheol for a time and then bring him back to light? How gladly, in that case, would he wait there like a soldier on guard till his relief came! For a moment it is not only a possibility; it is a certainty to be looked for. In the conflict between God's anger, which was bringing him to Sheol, and His love the latter would be victorious.

"Thou wilt call and I shall answer thee,
For the work of thy hands wilt thou have desire."

It is a fascinating but baseless thought. It flashes for a moment upon Job, and swiftly the thought is gone. Suddenly grim despair seizes him again. His despondent mood returns and he sees in the destructive processes of nature a symbol of the ruin of

human hopes, of that hope that like a gleam of sunshine had just slanted across the vision of his dream :

> "But, the mountain falling is destroyed,
> And the rock is moved from its place ;
> The water weareth away stones.
> The rainstorm sweeps away the soil.
> So the hope of man hast thou destroyed."

The awakening even for a time of this hope shows us that Job still clings to his belief in God. Despite the freedom of his complaint, his unconcealed scepticism aroused by his own condition, and the insoluble enigmas of life, there is in the deeper underswell of his thought a personal trust.

Chapter XIV. closes the first cycle of the book. A careful reading will detect a contrast not only between the views expressed on the subject discussed, but also between the range of the speaker's thoughts. Among the friends Eliphaz is *facile princeps* ; of the other two Zophar is superior to Bildad. But none of them shows the same range of knowledge and variety and virility of speech so characteristic of Job's rebuttals. Intellectual scepticism, where it is sincere, implies, first, ability to weigh argument, power of analysis. It often implies, as here, a poetic sense which perceives a truth as the seer although it may fail to formulate it in definite propositions. And, secondly, it has the freedom, if perfectly honest, of fearlessness. It naturally issues, therefore, in originality of thought, cogency, and versatility. Definitely prescribed belief on the other hand, of any form, sets bounds both to the thought and the imagination. It works towards sterility and monotony. No man can "by taking thought" be a *sceptic* any more than he can add a cubit to his stature. None of Job's friends could be other than they were. They might have ceased to be religious, but they could not become religious sceptics.

SECOND CYCLE OF SPEECHES (Chap. 15–21). ELIPHAZ.

The old arguments are repeated. Eliphaz's orthodox zeal has now forced his suave manners into the background. Every age has been an inquisition age—the instruments of torture differ, that

is all. Here barbed and burning words are used to extort a confession of penitence from the guiltless. It is doctrinal zeal making the tender hearted cruel. Eliphaz knows that his manner has changed from its first mildness. In verse 11 he refers to "the word that was gentle with thee"—his previous speech. He now borrows phrases from the vulgar Bildad and asks Job if his belly has been filled with the East wind. He harps as Bildad did upon the uncleanness of man born of woman. He falls back again upon tradition as to the invariable connexion between sin and suffering. Sarcastically he asks Job:

> "Wert thou the first of men to be born,
> And wert thou begotten before the hills?
> Dost thou have audience in the Counsel of Eloah,
> And dost thou seize upon wisdom for thyself?"

You act like a man who had a monopoly of wisdom. Yet all the gray-haired and the aged, men older than thy father, are on our side. He charges Job with turning his spirit against God—he the abominable and corrupt, who "drinketh iniquity like water." He demands attention and then proceeds to restate his view, suffering is the destined lot of the wicked. Knowing that Job had lost all his children, and that the fire consumed his flocks, and the Sabaeans and Chaldaeans had fallen upon his oxen and camels, he makes a pitiless thrust at the end,

> "The company of the wicked shall be barren,
> And fire consumeth the tents of bribery."

JOB'S REPLY.

These vain words do not assuage Job's grief. In Cap. XVI. he wonders why his friends wish to speak at all, seeing they have nothing to say which is pertinent to the case. He could speak as they do and shake his head at them if places were changed. Their severity has outdone itself. Swiftly flashes the thought upon him that they are irresponsibly used by Jahwe who has chosen them as His instruments of attack.

> "*El* hath delivered me to the ungodly,
> And into the hands of the wicked hath cast me.

I lived in peace, but he hath broken me to bits,
Seized me by the neck and dashed me to pieces.
He hath set me up for his target.
His arrows encompass me about.
He poureth out my gall upon the ground.
He breaketh me with breach upon breach.
He runneth upon me (as upon) a giant.
. . . . . .
My face is foul with weeping,
And on my eyelids is the shadow of death,
And yet there is no wickedness in my hands."

This statement of conscious innocence redeems his trust in God, who is the witness of his innocence.

"Even now, behold my witness is in heaven,
And he that voucheth for me is on high."

In Chapter XVII. he asks for protection from his "friends," and this must come quickly, for his end is near.

BILDAD'S SPEECH (Cap. XVIII.).

Bildad's speech is briefly summed up in a comparison of Job to a wild beast caught in a trap and tearing itself in fury. He asks tauntingly whether Job thinks the earth is going to be changed for his sake, or the rock removed from its place. Does he expect God to make a special law *for him*, one, forsooth, that would give him liberty to sin and escape the universal consequence. The gist of it is, that if Job is suffering, it is because he walked into the trap.

JOB'S REPLY (Cap. XIX.).

is vehement. He had replied to Eliphaz that had he been in their place, "the solace of his lips would have assuaged their grief." Now, he tells Bildad they have insulted him now ten times. Even if their view were correct, it did not justify their hardened opposition to him. This, then, is the inference to be drawn: "Know you that God hath overthrown me, and taken me in his net." Consequently when he makes his appeal for justice, no one gives judgment. God for some reason treats him with violence and hatred, and the hosts of God, with evil purpose, surround his tent. Breth-

ren and acquaintances He has estranged from him. Kinsfolk and familiar friends have forgotten him; his servants heed him not; his wife avoids him, and even children despise him. All that remains to him is life, and that is the misery of it. The fierce and brutal antagonism of his consolers and his utter abandonment produced the conviction that it was all from God. In the unequal contest, then, where were his friends?

> "Pity me, pity me, O my friends,
> For the hand of the Lord hath smitten me."

It is when he has reached this conviction that his affliction is from God that his confidence mounts highest, that ultimate justice will prevail. God, in other words, is saved out of the wreck of Job's old faith *by Job's own sense of justice*. God is never abandoned by Job, because "the pure in heart see God." They do more than see Him, they create Him, as human love transmutes its object into its own ideal.

The latter part of this nineteenth Chapter contains the finest and most unfaltering declaration of Job's faith in justice. He had just wished that his protestations of innocence might be written in letters of lead in solid rock,—a lasting rock-inscription for future generations to read. He sees something better, however, and more abiding, God himself will be his vindicator.

> "But I know that my vindicator liveth,
> And as the last will He arise over the dust,
> And behind my so mangled skin,
> And without my flesh (which is wasted away) shall I see God,
> Whom I shall see favourable to me,
> And mine eyes shall behold and not as an oppressor."

In this passage Job is not thinking of a *future* life. He is anticipating, despite his present tried and mocked condition, the vindication which ultimately comes when Jahwe appears. The A. V. and R. V. both transfer the hope of Job here to a future state, but only by a misinterpretation and mistranslation. "For I know that my Redeemer liveth, and that he shall stand at the latter day upon the earth: And though after my skin worms destroy this body, yet

in my flesh shall I see God, whom I shall see for myself and mine eyes shall behold and not another."

ZOPHAR'S SECOND SPEECH (Cap. XX.).

Zophar dwells upon the unstable character of the wicked man's prosperity. He talks, as it were, in parable of a rapacious man of power suddenly left destitute and destroyed.

> "Knowest thou this, since the first,
> Since man was set upon the earth,
> That the joy of the wicked is short,
> And the gladness of the corrupt but a twinkling," etc.

In this joy of the wicked, Zophar is referring to Job's hope, just expressed, of vindication. Job in reply, Cap. XXI., for the first time in this cycle of the arguments meets these assertions, that the wicked always get their deserts, with a direct denial. He forbids the premises, from which they are so bent on drawing their conclusions. Zophar does not see that it is the converse of the proposition that he needs to prove, nor does Job call attention to it; but the proposition, that the wicked are invariably punished, Job denies.

> "Why do the wicked live,
> Become old, yea, mighty in power?
> Their seed is established with them,
> And their offspring before their eyes."

Their houses are safe, their flocks increase, they make merry, enjoy wealth, and die without pain. Job admits that there are opposite cases, where they are overtaken by calamity. But this is precisely the point. The wicked prosper, and the wicked are destroyed. Therefore a man's fate is independent of his goodness or badness. The universal law they wish to establish is declared void by these opposing facts.

THIRD CYCLE OF SPEECHES (Caps. XXII–XXXI.).

We have seen that Job in his reply, at the close of the second cycle, met the contention of his friends, that wickedness always issues in suffering, with an absolute denial. He then substantiated

his position by reference to facts which not only defy contradiction but are matter of common observation,—facts which run clean athwart their orthodox tenets and establish the idea, not of an unvarying principle of government, but the opposite. Job charges his friends with lack of candor, and courage to acknowledge the truth, with prejudice in God's favor to whom they were showing the same kind of slavish preference as they might to some powerful client who was listening behind the screen.

In the first cycle they dwelt upon God's omniscience. Job showed that he fully appreciated human limitations, and acknowledged the inscrutable character of divine wisdom, by excelling them in forcible expression of it. But he showed also the irrelevancy of *omniscience* in the debate and its inapplicability to the solution of the mysterious riddle of his own suffering and human existence under such conditions.

In the second cycle they dwelt upon his providence in government, and Job denied their conclusions. In the third cycle Eliphaz begins by telling Job that God in His treatment of men is not influenced by any regard He has for Himself, God is quite superior to and independent of man's regard. "Is it any pleasure to God that thou art righteous?" God may demand worship, obedience, and submission, the content of righteousness according to their ideas, but in His sublime exaltation He is superior to it. This is an idea wholly antagonistic to ancient thought, not only among the Jews but also among extra-Israelitish peoples. In Euripides Hippolytus, e. g., Aphrodite, the Goddess begins the prologue:

> "Known among men and not unnamed, am I,
> The goddess Kypris, and in heaven as well,
> Of all who dwell between the Atlantic bounds
> And Euxine sea and look upon the sun,
> Those I advance who reverence my power,
> And those who proudly scorn me I bring to grief;
> (Exactly the view of the three friends)
> *For this is natural even for the gods*
> *To take delight in honors from mankind.*"

When Eliphaz takes the opposite view here it is a concession to Job's higher view of deity—that divine transcendence which

makes God's acts inscrutable. Eliphaz's thoughts of God are momentarily enlarged. He acknowledges a perfection of being calm and unconditioned in its infinitude. Quick as a flash Eliphaz draws the conclusion: If God enters into dealings with man it must be for man's sake. And, for piety God would not afflict, therefore, it must be for sin. In this third cycle, since the other considerations failed to move Job to a confession, Eliphaz is driven to the desperate resort of openly assailing him as *a heartless and inhuman sinner*. Previous insinuations are framed into definite impeachments. But Eliphaz, true to his character, even here, seeks to take the sting out of his accusations by enticing promises partly of a worldly nature, partly spiritual. Job should in the end exult in the chiefest of philanthropic joys, and become a saviour to those who were not innocent. At the same time he has accused him specifically of oppression of the poor and the naked, of callous-hearted treatment of the widow and the orphan; he has acted as though God could not see through the thick clouds. This he alleges is a part of Job's creed. Hence the enormity of his crime can be compared only to the evil way of the wicked race of giants who lived before the Flood, and filled the earth with deeds of violence; he asks:

> "Wilt thou keep to the old way
> Which wicked men have trod,
> Who were cut down before their time,
> Whose foundation was poured out as a river?
> Who kept saying to *El*, 'Depart from us,'
> And 'What can *Shaddai* do for (or to) us?'"

With the exception of Bildad's interjection of a few words the indictment of the *friends* against Job is ended. The opposing evidence, to speak in the language of the courts, is all in and Job proceeds with his defence until Jahwe appears to sum up the merits of the case and pronounce the verdict.

JOB'S REPLY.

Job passes over in contemptuous silence and conscious superiority the alleged crimes laid to his charge. In Chap. XXIII.

Job begins with a wish that he could find God and bring his case before his judgment-seat and plead with arguments the righteousness of it. He knows that he would come forth as tried gold. But that is a vain hope.

"I go forward, but he is not there,
And backward, but I cannot perceive him."

Even if he could reach him he would not get a just decision from this omnipotent and irresponsible power.

"He willeth and who can prevent him?
He doeth what his soul desireth
And he will accomplish my fate,
Therefore, I am terrified in his presence,
I perceive and am in dread of Him."

Further, if God foresees all human times and fates, why do not men who claim to know Him have some knowledge of His ways? His own experience proves that they do not, and this enforced ignorance is tacitly held to be an act of injustice.

Job next passes to a long description of wicked men's ways as his mind reverts to the main thesis. He recites at length their oppression of the poor and helpless, yet God doth not impute it to their folly. Often they come to an undesirable end at last, it is true, but in the main God giveth them security, and when they die they die as others. Who, he defiantly asks, will disprove his words, and prove him false? Job has added nothing whatever here to the progress of thought.

Bildad then attempts a reply. The main point is the old hackneyed one of man's impurity and God's omnipotence. Job does not deny the latter. On the other hand he breaks forth into a masterly panegyric of God's wisdom and power in Cap. XXVI.

The thought of this omnipotence, as often as Job dwells upon it, forces upon him the consideration of his own relation to it. He feels his puny insignificance before this majesty of power, but he feels, also, within himself the might of a pure and therefore undismayed conscience. He is consequently willing to take oath in God's name that so long as breath is in his nostrils he will not perjure his soul by a plea of guilty.

"While my breath remaineth in me
And the spirit of God in my nostrils,
My lips shall not speak iniquity,
And my tongue shall not utter falsehood.

(The meaning here is not as vulgarly understood: "I will continue to live a righteous life.")

God forbid that I should justify you,
Till I die will I not forsake mine integrity.
. . . . . .
My heart will not reproach me so long as I live."

From verse 7 to the end of Chapter XXVII. Job turns upon his friends whom he regards as enemies and ranks with the wicked. His description of the fate of the wicked which follows is inconsistent with what he has said before. Previously he said that a wretched doom often does dog the heels of crime; but he held that this was no necessary or invariable consequence (Cap. XXI.). Now he apparently speaks as though there were no exceptions. We can hardly attribute to him such a rapid revolution in thought. The wicked man that he is here threatening is the wilful *perverter* of the truth. Before, he spoke of the general class of sinners. Here he is specifying more particularly the unrighteous and godless, using the same word for unrighteous as we find, e. g., in Lev. 15, where it is used of "perverting judgment," and the same word for "godless" as occurs in Zeph. 3:3, where it is set in direct antithesis to the clear and open judgment of Jahwe.

For the *wicked perverter of truth* there is no forgiveness. This is the unpardonable sin, and his "friends" have been found guilty. They have denied his integrity and accused him of all manner of sin in the interest of their narrow dogma. Without any evidence of wickedness they have assumed him to be guilty from the first, and, at the last, they have charged him with specific crimes. Their conscience must be their accuser, and God will be their judge.

"Terrors shall take hold upon him,
And (God) shall cast on him and not spare."

In Job conscience found its apotheosis. The one class of sinners upon whom the shafts of God's anger will be unerringly hurled is the desecrator of this Holy of Holies.

All along they have threatened Job with divine judgment. Job now pronounces the anathema of God on them.

Almost all interpreters regard this passage as directly antagonistic to Job's previous position consistently held from the beginning, and it is commonly regarded as an interpolation. On the contrary, I think that a legitimate interpretation shows it to be in complete harmony with Job's view of the moral demands of conscience. Against that inner spirit of truth no word spoken would be forgiven. This was the sin of his friends in the interest of an old orthodoxy.

CONCLUSION OF ARGUMENT.

At this point the discussion of the book ends. Chap. XXVIII. is in the nature of a conclusion. The ever-recurring question of the ages, the reconciliation of human suffering with God's omnipotence and justice, has been discussed. The old Hebrew dogma has been found by inference to be unsupported by the facts. It not only is utterly inapplicable in the case of Job, it fails of support in countless other cases well attested by common experience. How, then, does the case lie? It belongs to the sphere of mystery into which human wisdom cannot enter. The whole question of existence in view of its unhappiness has been raised with the particular question and the answer is nowhere to be found, but with God himself—with Him alone is wisdom. The conclusion of this book, so far as it aims at solving life's mysteries, might be stated in the words of Lewes's *Life of Goethe*: "The mystery of existence is an awful problem, but it is a mystery, and placed beyond the boundary of human faculty! Recognise it as such and renounce. Knowledge can only be relative, never absolute. But this relative knowledge is infinite, and to us infinitely important. Happiness, ideal and absolute, is equally unattainable. Renounce it. The sphere of active duty is wide, sufficing, ennobling to all who strenuously work in it." It is the conclusion of *Faust*:

"Nach drüben ist die Aussicht uns verrannt;
Thor! wer dorthin die Augen blinzelnd richtet,
Sich über Wolken seines Gleichen dichtet!

Er stehe fest und sehe hier sich um;
Dem Tüchtigen ist diese Welt nicht stumm.
Was braucht er in die Ewigkeit zu schweifen!
Was er erkennt, lässt sich ergreifen.
Er wandle so den Erdentag entlang;
Wenn Geister spuken, geh' er seinen Gang;
Im Weiterschreiten find' er Qual und Glück,
Er! unbefriedigt jeden Augenblick."

Here, too, with Job practical duty and practical truth must take the place of speculative and absolute truth. Theoretical wisdom is unsearchable. Life's mysteries are insoluble. Practical wisdom is open to all.

"The fear of the Lord is wisdom,
And to avoid evil is understanding."

The point to be noticed in this conclusion is that Job makes ethical duty a categorical imperative,—the law of life absolute and unconditioned by considerations of reward and punishment. This Chapter (XXVIII.) gives the most vigorous presentation of the wisdom and claims of ethical duty.

From here on Job seems to be casting back again over the course of his thoughts and to be making a rapid survey of his life. This naturally induces some of the old moods, and some of the former ideas are reiterated. He calls to mind the days of his prosperity and wishes he "were as in the months of old when God watched over him, and His lamp shined upon his head,—when the Almighty was yet with him, and his children were round about him." He recalls his past integrity, his unselfish and benevolent life, and his hope when he said:

"I will die in my nest and reckon my days as the sand."

In Chap. XXX. he contrasts those happy days with his present misery. Then princes once held their breath in his presence. Now men who are the offscouring of the earth—no better than savage troglodytes—hold him in derision.

In Chap. XXXI. he sums up his defence with a reiteration of his innocence. He wishes God would weigh him in a balance, as the Egyptian soul was weighed by Thoth. Then would the feather

weight of justice proclaim his integrity. Besides freedom from sins of unchastity, oppression, lying, fraud, avarice, he claims purity in worship. He has never kissed his hand to his mouth when he has seen the sun walking in its splendor and the moon marching in its greatness. Had he indulged in these heathen idolatries then had he denied his God and would have been guilty. Before the judgment seat he stands with unbowed head and conscience calm. We look back upon this sublimest spirit of literature challenged to love, and we obey. We turn to the tragedy of life misunderstood by would-be friends and guides, and we see afresh the sad meaning of those fine but truthful words :

> "Innocence seethed, in its mothers milk,
> And *charity setting the martyr aflame.*"

The case is ended with Cap. XXXI., and Job appeals to the Almighty for the verdict. Caps. 38–41 contain the answer. The speeches of Elihu which intervene and to which Job makes no reply are undoubtedly a later interpolation.

The reason these speeches of Elihu were introduced was probably because the readers to whom they are due felt (as is indicated in the introduction to them, Cap. 32 : 3) that the attempt of the three friends to justify the ways of God were a signal failure. After Elihu's speech Job is silenced. Elihu's theodicy is little in advance of that of the friends. The corrective element of suffering is more distinctly brought out. The author of the poem evidently did not feel that there was much to be said in favor of this argument, and, therefore, omitted it for the most part from the "friends" speeches.

The angelology, especially the idea of *one* mediating angel which represents the later stage of thought, is distinctly prominent in Cap. XXXIII.

JAHWE'S REPLY.

In Jahwe's reply, he says to Job : "Gird up thy loins like a man, I will question and thou shalt answer me." The poet thus connects the answer with Job's previous challenge, in which Job said that it mattered not how the case was conducted—who took the place of plaintiff, who of defendant. Job had propounded a

great many questions himself. Now question after question is put to him to which he can give only a negative reply. At the end Job says:

> "Behold I am of small account;
> What shall I answer thee,
> I lay mine hand upon my mouth.
> Once have I spoken, and I will not reply,
> Yea twice, but I will proceed no further."

God speaks again out of the whirlwind and Job is reproved for his vehement invective, which it is intimated implied an assumption of omniscience. The most awe-inspiring objects of nature are rapidly brought before him. In them God's power is manifest, and by contrast his own impotence is emphasised. Job thus attains not to a new view but a greatly enlarged view of the divine omnipotence and unsearchableness. Notwithstanding his previous lofty conceptions of the divine attributes he fell far short of truly estimating them. Of this Job is now convinced. He acknowledges that much that he has said has been without knowledge. At the end he is made to repent of his rashness of speech, *but not of previous sin as the cause of his trouble.* On the other hand, God speaks to Eliphaz, saying: "*My wrath is kindled against thee and thy two friends, for ye have not spoken of me the thing that is right, as my servant Job hath.* Job is justified and restored to double his prosperity. The names of his daughters are intended to express his new-found joy. Jemimah means "door," Keziah "sweet perfume," and Keren-happuch "rouge and stibium bottle." Peace, delight, and beauty are the attendants of his later life.

JOB'S REPENTANCE.

What is Job's repentance? After reading the speech of Jahwe we are a little surprised at the verdict. We are prepared to hear sentence pronounced against Job. God did not demand repentance of Job, however, neither does he deny his integrity. His own conscience has never admitted guilt. Thrice in the epilogue Jahwe says: "My servant Job hath spoken of me the thing that is right." Jahwe's commendation of Job is not for repentance, but for his

fearless candour and truthful attitude with respect to Jahwe. The friends are condemned because they were not truthful. They with their narrow creed had probably serious doubts about it, or much as they had to say of his omnipotence and providence they assumed that their theory was coextensive with the requirements of the case concerning which they were ignorant, thus narrowing God to a creed. Job's scepticism grew out of his inability to comprehend God. The friends even when they dwelt upon the divine majesty spoke without true religious reverence. In their assumption of a higher adequate knowledge and truth they proved their lack of both. Job's arguments, therefore, in so far as they were a protest against the possibility of reducing God and his acts to the measure of human theories, such as the prevailing Hebrew doctrine of divine providence as exemplified in the prevalent belief in a divine retribution manifest in all suffering, showed the higher reverence and reached the higher truth, negative though it was. But Job, on the other hand, was too self-centered in his thought. Through Jahwe's speech his views are enlarged—God's care and providence extend throughout the whole world of life—the universe is his care. Job's thoughts of self and personal suffering are minified in the presence of this enlarged conception of God and the universe of which he is only a part. God and life remain to him more inscrutable than ever. His repentance is not demanded, but the new vision produces the conviction that he had spoken vehement words where he should "have laid his hand upon his mouth."

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MYTHS IN ANIMAL PSYCHOLOGY.

THE life-histories of animals, from the primordial germ-cell to the end of the life-cycle; their daily, periodical, and seasonal routines; their habits, instincts, intelligence, and peculiarities of behavior under varying conditions; their geographical distribution, genetic relations and œcological interrelations; their physiological activities, individually and collectively; their variations, adaptations, breeding and crossing,—in short, the *biology* of animals, is beginning to take its place beside the more strictly morphological studies which have so long monopolised the attention of naturalists. The revival of interest in general life-phenomena, and especially in the psychical activities of animals, takes its date from Darwin's epoch-making work. The phenomenal insight which this great naturalist brought to the study of animal instinct and intelligence illuminated the whole subject and prepared the way for the development of a new science, commonly designated "Animal Intelligence; or, Comparative Psychology." That mind and body must have been evolved together and under the same natural laws was the conclusion destined to become the corner-stone, not only of biology, but also of rational psychology.

Darwin's views triumphed, as all the world knows; but while his ideas have been generally accepted, his method, the real secret of his success, has had too few followers. Darwin's method was to prepare himself for his problem by long-continued and close examination of all its details and bearings. He was no hustler on the jump for notoriety, no rapid-fire writer; but a cool, patient, indefatigable investigator, counting not the years devoted to prelim-

inary work, but weighing rather the facts collected by his tireless industry, and testing his thoughts and inferences over and over again, until well-assured that they would stand. Such a method was altogether too laborious and searching to be imitated by students ambitious to reach the heights of comparative psychology through a few hours of parlor diversion with caged animals, or by a few experiments on domestic animals. We are too apt to measure the road and count the steps beforehand. Darwin allowed the subject itself to settle all such matters, while he forgot time in complete absorption with his theme. Neglect of Darwin's example in this respect has been unfortunate for both general animal biology and the coming science of comparative psychology. An examination of a few typical cases in recent literature may help make us more heedful of Darwin's example, and more reserved in announcing observations and conclusions which have not passed through the furnace of verification and repeated revision.

One such case[1] is furnished in a recent volume on *Animal Intelligence*, by Mr. Wesley Mills of McGill University. It is a case of

ALLEGED FEIGNING IN SQUIRRELS.

As the subject of feigning is one of great interest, as the method of treatment is especially instructive from the point of view before defined, and as the observations are presented as a contribution to comparative psychology, the case is entitled to special attention, and I shall, therefore, make it the leading subject for examination. The author stimulates interest in his communications by announcing that they give two examples in which feigning was strikingly manifested; and in another place he speaks of them as among the most typical cases of such behavior ever recorded.

After reading these observations through and through with care and in the full expectation of finding every promise fulfilled, I have to confess my inability to discover any satisfactory evidence

[1] The selection of this case, it may be hardly necessary to say, was due to its nature and fitness for the purpose in view. It would not be fair to judge of the book as a whole from this small part. The book contains much interesting matter and will doubtless be widely read as it deserves.

of feigning. Naturally, I am disappointed and surprised, and all the more so as it seems to me that Mr. Mills himself must be credited with all the feigning he has ascribed to his two chickarees; that is to say, the supposed feigning is a misinterpretation. Whether I am correct or not, an examination of Mr. Mills's observations cannot fail to be of interest. The subject of animal intelligence has scarcely yet emerged from the mythical state, and no part of the subject is in a more hopeless tangle of misinterpretation than the so-called feigning of animals. It must be said to the credit of Mr. Mills that he has kept his observations apart from his interpretations, and he has thus made it possible for the reader to draw his own conclusions.

A few instances to illustrate how easily people allow themselves to be misled in regard to animal intelligence and to draw conclusions from evidence supplied largely or wholly from the imagination, may put us in a more cautious frame of mind for interpreting the behavior of Mr. Mill's squirrels.

A Horse Protects His Master from the Tusks of a Savage Boar.

"George Howard, nineteen years of age, who has been employed on the farm of George Lent, about a mile outside of the city on the Buffalo road, is at the Homeopathic Hospital, suffering from injuries inflicted on him by a hog. That young Howard is not a subject for the coroner instead of the hospital surgeon is due to the fact that a horse which has been a great favorite of Howard and is greatly attached to the boy, kicked the enraged hog away as the brute was about to fasten its teeth in the boy's throat. The horse has always been looked upon by Farmer Lent as a remarkably intelligent member of the equine family, but he is now considered a wonder, and had the farmer not himself witnessed the act of the horse, he would never have believed that an animal could display such intelligence.

"The hog which made the attack on Howard was a large and particularly ugly brute. He broke out of his pen yesterday afternoon, and made a rush for the barn. The door was open and young Howard, who had just placed his favorite horse back into his stall

after a careful grooming, was just starting to go out of the door when the enraged hog entered with a rush. The brute made a savage attack on the boy, and, fastening his teeth on the calf of the leg, tore and lacerated the flesh. Howard fell back into the stall and close to the feet of the horse he had just groomed.

"The hog was springing at the throat of his prostrate victim when the horse raised his hind feet and gave the hog a kick which sent him ten feet and caused him to squeal with pain. Mr. Lent, who had been attracted by the screams of the boy, was just entering the barn door as he saw the horse kick the hog off the prostrate body of the boy."

This account from the *Rochester Union and Advertiser* appears to be entirely reliable, so far as the circumstances are concerned; but these, it will be seen, do not justify the conclusion that the horse kicked the hog in order to protect the boy. The hog was probably kicked without a thought of the boy. The fright of the horse would cause it to kick in its own defence, and we are thus left without the slightest evidence of any altruistic motive in the act.

Story of the Dog-Fish (Amia Calva) and Its Young.

The following statement is taken from George Brown Goode's *Natural History of Useful Aquatic Animals* (pp. 659–660). It is a quotation from a Dr. Estes, but Mr. Goode indorses it as a part of "the best description of the habits of the fish."

Dr. Estes says:

"I come now to mention a peculiar habit of this fish, no account of which I have ever seen. It is this: While the parent still remains with the young, if the family become suddenly alarmed, the capacious mouth of the old fish will open, and *in rushes the entire host of little ones; the ugly maw is at once closed, and off she rushes to a place of security, when again the little captives are set at liberty.* If others are conversant with the above facts, I shall be very glad; if not, shall feel chagrined for not making them known long ago."

It is true that the old fish (the male) will sometimes open wide his mouth when approached, as if threatening an attack. It is also true that the swarm of young will suddenly disappear at any

slight disturbance in the water, and after an interval of some minutes of quiet reappear at or near the place of disappearance.

At the moment of alarm and disappearance of the young, the old fish rushes off a short distance, stirring up the mud as he leaves. If the observer keeps perfectly quiet for some minutes, the parent fish may often be seen returning very slowly and cautiously so as not to be seen. Soon after he reaches the place in which the young are concealed at the bottom, they begin to gather about him and renew their feeding on small aquatic animals abundant in the grass along the shore.

Dr. Estes had seen the old fish open its mouth, and the young disappear as the fish dashed away. He had seen the young again with the parent fish, not far from where they were first observed. He did not take the trouble to find out how the young escaped from sight, and jumped at the conclusion that they had taken refuge in the mouth of the old fish. What a wonderful tale, and how strange that a conscientious observer could so completely humbug himself! Now this is no exceptional case; it is one of the most common occurrences, and that, too, even among men of high standing in science.

Let us now take an example from the comparative psychologist, who always has on hand an unlimited supply of this kind of material.

The Story of the Insane Pigeon.

This story, which is taken from *The Mental Evolution of Animals* (p. 173) by Mr. Romanes, has been thought worthy of translation into German by Karl Gross in his *Spiele der Thiere.* The case was reported to Mr. Romanes by a lady, and is given in her own words:

"A white fantail pigeon lived with his family in a pigeon-house in our stable-yard. He and his wife had been brought originally from Sussex, and had lived, respected and admired, to see their children of the third generation, when he suddenly became the victim of the infatuation I am about to describe.

"No eccentricity whatever was remarked in his conduct until

one day I chanced to pick up somewhere in the garden a ginger-beer bottle of the ordinary brown-stone description. I flung it into the yard, where it fell immediately below the pigeon-house. That instant down flew paterfamilias and to my no small astonishment commenced a series of genuflections, evidently doing homage to the bottle. He strutted round and round it, bowing and scraping and cooing and performing the most ludicrous antics I ever beheld on the part of an enamored pigeon. . . . Nor did he cease these performances until we removed the bottle; and, which proved that this singular aberration of instinct had become a fixed delusion, whenever the bottle was thrown or placed in the yard—no matter whether it lay horizontally or was placed upright—the same ridiculous scene was enacted; at that moment the pigeon came flying down with quite as great alacrity as when his peas were thrown out for his dinner, to continue his antics as long as the bottle remained there. Sometimes this would go on for hours, the other members of his family treating his movements with the most contemptuous indifference, and taking no notice whatever of the bottle. At last it became the regular amusement with which we entertained our visitors to see this erratic pigeon making love to the interesting object of his affections, and it was an entertainment which never failed, throughout that summer at least. Before next summer came round, he was no more."

Mr. Romanes remarks:

"It is thus evident that the pigeon was affected with some strong and persistent monomania with regard to this particular object. Although it is well known that insanity is not an uncommon thing among animals, this is the only case I have met with of a conspicuous derangement of the instinctive as distinguished from the rational faculties,—unless we so regard the exhibitions of erotomania, infanticide, mania, etc., which occur in animals perhaps more frequently than they do in man."

This pigeon, whose behavior has given it so wide fame as a case of deranged instinct, was undoubtedly a perfectly normal bird; and had Mr. Romanes been familiar with the antics of male pigeons, he would have found nothing in the performances to indicate in-

sanity. I have seen a white fantail play in the same way to his shadow on the floor, and when his shadow fell on a crust of bread he at once adopted the bread as the object of his affection, and went through all the performances described by the lady, even to repeating the behaviour for several days afterward when I placed the same piece of bread on the floor of his pen. If one is looking for insanity in pigeons, let him first know the normal range of sanity, and pay little heed to stories of inexperienced observers who are apt to overlook circumstances essential to a correct understanding of what they report.

It is not improbable that the lady's amusing pigeon at first took the bottle for a living intruder upon his ground, and flew down to it for the purpose of driving it off. Finding it at rest, if his shadow fell upon it, or if his image was even faintly reflected from its surface, he would readily mistake it for a female pigeon, and after once getting this idea and performing before it, the bottle would be remembered and the same emotions excited the next time it was presented. The only value this suggestion can have is, that it is based on a similar case. The lady's observations were incomplete at the critical moment, i. e., at the time of the *first* performance, and it is too late to mend the failure.

The essentials to understanding any peculiar case of animal behavior are almost invariably overlooked by inexperienced observers, and the best trained biologist is liable to the same oversight, especially if the habits of the animal are not familiar. The qualification absolutely indispensable to reliable diagnosis of an animal's conduct is an intimate acquaintance with the creature's normal life, its habits and instincts. Little can be expected in this most important field of comparative psychology until investigators realise that such qualification is not furnished by parlor psychology. It means nothing less than years of close study,—the long-continued, patient observation, experiment, and reflexion, best exemplified in Darwin's work.

Let us now examine

TWO CASES OF SUPPOSED FEIGNING IN SQUIRRELS, AS REPORTED BY MR. MILLS.

Case I. (Pp. 61–62.)

"I was standing near a tree in which a red squirrel had taken up a position, when a stone thrown into the tree was followed by the fall of the squirrel. I am unable to say whether the squirrel was himself struck, whether he was merely shaken off, or how to account exactly for the creature's falling to the ground. Running to the spot as quickly as possible, I found the animal lying apparently lifeless. On taking him up, I observed not the slightest sign of external injury. He twitched a little as I carried him away and placed him in a box lined with tin, and having small wooden slats over the top, through the intervals of which food might be conveyed. After lying a considerable time on his side, but breathing regularly, and quite free from any sort of spasms such as might follow injury to the nervous centres, it was noticed that his eyes were open, and that when they were touched winking followed. Determined to watch the progress of events, I noticed that in about an hour's time the animal was upon his feet, but that he kept exceedingly quiet. The next day he was very dull—ill, as I thought, —and I was inclined to the belief, from the way he moved, that possibly one side was partially paralysed; but finding that he had eaten a good deal of what had been given him (oats), I began to be suspicious. Notwithstanding this apparent injury, that very day, when showing a friend the animal, on lifting aside one of the slats a little, he made such a rush for the opening that he all but escaped. On the third day after his capture, having left for a period of about two hours the sittingroom (usually occupied by two others besides myself) in which he was kept, I was told, on my return, by a maid-servant and a boy employed about the house, that some time previously the squirrel had escaped by the window, and, descending the wall of the house, which was 'rough-cast,' he had run off briskly along a neighboring fence, and disappeared at the root of a tree. When asked if they saw any evidence of lameness, they

laughed at the idea, after his recent performances before their eyes. For several days I observed a squirrel running about, apparently quite well, in the quarter in which my animal had escaped, and I feel satisfied that it was the squirrel that I had recently had in confinement, but, of course, of this I cannot be certain.

"I believe, now, that this was a case of feigning, for if the injury had been so serious as the first symptoms would imply, or if there had been real paralysis, it could not have disappeared so suddenly. An animal even partially paralysed, could scarcely have escaped as he did and show no sign of lameness. His apparent insensibility at first may have been due to catalepsy or slight stunning. But while there are elements of doubt in this first case, there are none such in that about to be described."

Substantially the case is as follows:

1. A stone was thrown at a red squirrel in a tree, the animal fell to the ground apparently lifeless, there was no mark of external injury, but the squirrel *twitched* a little when taken up; it was placed in a box, where it lay upon its side, breathing regularly; after some time it was noticed that the eyes were open, and that winking resulted from touching.

If the squirrel was stunned, as seems probable, the behavior so far would not indicate feigning, so far as I can see.

2. In about an hour's time, the animal was found upon its feet, but it kept quiet; the next day the squirrel looked dull, but *moved as if injured in one side;* it had eaten oats.

I see nothing in all this to raise the "suspicion" that the injury was unreal and feigned.

3. This same day the squirrel tried to escape, when alarmed by the lifting of a slat.

Surely nothing surprising in a wild squirrel well enough to eat, even if it was still suffering from an injury.

4. On the third day after capture, according to testimony of servants, the squirrel escaped through an open window, ran off briskly along a fence, and disappeared at the root of a tree. Servants noticed no lameness.

An animal well enough to make a vigorous dash for liberty the

day before, might well escape in the manner described. The servants' testimony as to the absence of lameness amounts to nothing. The squirrel subsequently seen by Mr. Mills, running about, "apparently quite well," may or may not have been the one he lost. Observe that Mr. Mills does not *know* whether the squirrel was injured or not. There was an appearance of injury and every reason to believe it was real, yet the cause of the injury, if real, and its nature and extent were not definitely known. Mr. Mills asserts that, *if* the injury had been as serious as the first symptoms *implied*, it *could* not have disappeared *so suddenly*. There are too many unknown elements for any positive conclusion. We do not know that the lameness had entirely disappeared at the time of escape; and if it had, there would not seem to have been any remarkable suddenness after three days' convalescence.

In this case nearly every point of critical importance was undetermined, and the author seems to be too little familiar with squirrel behavior.

The second case is claimed to be free from any element of doubt. "A more typical case of feigning than this one," says Mr. Mills, "could scarcely be found."

"A Chickaree was felled from a small tree by a gentle tap with a piece of lathing. He was so little injured that he would have escaped, had I not been on the spot where he fell and seized him at once. He was placed forthwith in the box that the other animal had occupied. He manifested no signs whatever of traumatic injury. One looking in upon him might suppose that here was a case of a lively squirrel being unwell, but events proved otherwise. He ate the food placed within the box, but only when no one was observant. He kept his head somewhat down, and seemed indifferent to everything. When a stick was placed near his mouth he savagely bit at it; but when a needle on the end of the same stick was substituted he evinced no such hostility. He made no effort to escape while we were in the room, but on our going down to dinner he must at once have commenced work, for on returning to the room in half an hour he was found free, having gnawed one of the slats sufficiently to allow him to squeeze through. With the assistance

of a friend he was recaptured, but during the chase he showed fight when cornered, and finally, as he was being secured, I narrowly escaped being bitten. He was returned to his box which was then covered with a board weighted with a large stone. Notwithstanding, he gnawed his way out through the upper corner of the box during our absence on one occasion shortly afterwards.

"I think a more typical case of feigning than this one could scarcely be found."

The essentials are as follows:

1. A Chickaree, knocked from a tree with a piece of lathing, was captured and caged as before. Why, "one looking in upon him might suppose that there was a case of a lively squirrel *unwell*," is not explained. A very important point, but with no more information, we are unable to judge whether the squirrel was feigning or Mr. Mills imagining. If the animal was merely quiet through fear, as seems most probable from there being no further description, who that is familiar with squirrels would have surmised that it was feigning sick?

2. The squirrel did not eat when one was watching it. Perfectly natural. Fear would prevent.

3. It kept its head "somewhat down," and seemed indifferent, but when a stick was placed near its mouth it bit at it savagely. Mr. Mills seems to regard this as evidence of feigning indifference or sickness. If such behavior is feigning, Mr. Mills is a true discoverer.

4. The squirrel made no effort to escape while Mr. Mills was present, but did get free when left alone for half an hour at dinner-time. Such evidence of feigning has a decidedly entertaining side, to say the last. The squirrel seems to be the cleverer fellow every time, for he is serious while the observer thinks he is fooling. Who has not seen a squirrel hide behind a branch of the trunk of a tree to escape being seen by a person approaching? Is keeping *quiet* under such circumstances *feigning* quiet? If a confined squirrel, alarmed at our presence, sits still while we are watching him, but tries to get free when left alone, is there any deception in his behavior except what we ourselves invent?

5. The squirrel was recaptured, but showed fight when cornered, and Mr. Mills narrowly escaped being bitten. *Mirabile dictu!* A good bite would have been the best feint of all. Mr. Mills's good luck was an untold loss to comparative psychology.

6. "The squirrel was returned to its box, and *a board weightea with a large stone* placed over it. *Notwithstanding* he gnawed his way out through the upper corner of the box during our absence on one occasion shortly afterwards."

A large stone on a board to keep the animal in, can only be taken as another feint on the part of Mr. Mills, for of course he did not expect thus to prevent gnawing out. The size of the stone did not fool the squirrel, whoever else was taken in.

Further, on p. 71, Mr. Mills comes to the question of what is essential to feigning death or injury. "It is to be remembered," says the author, "that in these cases the animal simply remains as quiet and passive as possible. . . . It is within the observation of all that a cat watching near a rat-hole, feigns quiet. . . . A great part of the whole difficulty, it seems to me, has arisen from the use of the expression 'feigning death.' What is assumed is *inactivity* and *passivity*, more or less complete. This, of course, bears a certain degree of resemblance to death itself."

Darwin carefully compared the appearance of death-feigning insects and spiders with that of the really dead animals, and the result was, as he says, "that in no one instance was the attitude exactly the same, and in several instances the attitude of the feigners and of the really dead were as unlike as they possibly could be." (See Appendix to Romanes's *Mental Evolution in Animals*, p. 364.)

Romanes (p. 308) states this result in less cautious language: "All that 'shamming dead' amounts to in these animals is an instinct to remain motionless, and thus inconspicuous, in the presence of enemies."

Mr. Mills makes the conclusion still broader, assuming that the *essential* thing in feigning is *quiet*. That, even in the case of insects, quiet is not the distinctive character of feigning seems evident when we remember that the non-feigning state may be one of as

perfect quiet as that of the feigning state. The mere passivity does not of itself discriminate between these two very different states; in other words, it does not give us the criterion of either state. The essential thing is not a non-differential element, common to the two states. The "essential" must give us the difference, and enable us to distinguish clearly between the normal state of rest and the so-called feigned condition. The quiet of an animal at rest and that of the same animal feigning death, are two very different things; otherwise we should have no use for the term "feigning" as a means of distinction. In one case the quiet is perfectly normal and signifies only a state of rest; in the other it means an *assumed* or *induced* condition, as the result of disturbance and alarm.

The cause, the conscious purpose or the blind adaptation, and the external appearances are all essentially unlike in the two cases. Look at the beetle at rest on the branch or leaf of a tree, and at the same beetle after it has dropped to the ground, alarmed by some unusual jar, lying as it fell, motionless, on its side or back. Is the quiet now the same as before? or is it as different as calm unheeding composure and the stupor of terror, or the stillness deliberately maintained to escape discovery? Whether cataleptic or voluntary, the so-called feigned quiet has no fundamental likeness with the quiet of normal rest. There is only a deceptive outward semblance, which speedily vanishes on closer comparison.

In the quiet of a cat before a rat-hole, we have quite a different phenomenon, and one to which the term feigning seems to me to have no legitimate application. There is no fear, no involuntary suspension of activity, no attempt to imitate a state of death, or to falsify appearances in order to escape enemies. The quiet is deliberately maintained, not on account of alarm, but to avoid giving alarm to her intended victim; not to elude but to capture, the rat. The cat is not surprised, but she hopes to surprise the rat. She has the same end in view when she stalks a bird, keeping behind some intervening object that hides her from view. Here the cat is in motion and glides on with manifest satisfaction in her advantage; and if she is feigning, she is certainly not feigning quiet. It must be evident, I think, that if feigning does not properly char-

acterise the *action* of the cat in this case, it cannot properly define the *inaction* in the other.

Returning to his "feigning squirrels" (p. 72), Mr. Mills tells us more explicitly what he understands by feigning in their case.

"These little animals were naturally led, under the unwonted circumstances of their confinement, to disguise, in an extraordinary degree, their real condition, and even to imitate an unusual and unreal one. The mental process is a complex of instinct pure and simple, with higher intellectual factors added, and the cases of these squirrels, thus feigning, are among the clearest that, so far as I am aware, have ever been recorded."

This leaves no doubt that Mr. Mills believes he saw something more than feigning quiet in his squirrels. "*Disguise of the real and imitation of the unreal,*" is what Mr. Mills claims to have seen, and what I have failed to find any satisfactory evidence of in the reports he has given. In fact, the observations seem to me to indicate no feigning at all on the part of the squirrels, and to show very clearly that Mr. Mills failed to get reliable data at just the most critical points. It is the old failure of anecdote psychology.

If it be true, as I think will be generally admitted, that comparative psychology is a science of the future; and if at present it is only a part of general biology, it follows that any attempt to soar to "the nature and development of animal intelligence," except through the aid of long schooling in the study of animal life, is doomed to be an Icarian flight.

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BIOLOGY AND METAPHYSICS.

IN CONSIDERING the relation of science to metaphysics, assuming that each has a place in the scheme of human endeavor, I have urged the essential importance of distinguishing as clearly as possible the sphere of the one from the sphere of the other. No doubt such delimitation of subject-matter involves definitions of the terms "science" and "metaphysics" which are not universally accepted. Ambiguity on such a vital point would, however, be fatal. It is therefore essential that the exact meaning I attach to these terms should be stated, and if necessary restated, with clearness and frankness. The sphere of science, then, in the somewhat restricted sense I here advocate, is the universe of phenomena. The man of science deals with the realities of experience. Accepting these realities as data, the primal mode of origin of which, if they have such a mode of origin, it is not for him to consider, he traces the changes that they undergo, generalises the results, and gives them clear expression in terms of related antecedence and sequence. For him any event is explained when the conditions of its manifestation are laid bare, when its antecedents have been traced, and when it is referred to its appropriate category in the scheme of natural occurrences. On the other hand the sphere of metaphysics is that of noumenal existence; of the underlying cause of the observed sequences of phenomena; of the *raison d'être* of the universe which science has done so much to explain in terms of antecedence and sequence. Thus regarded science and metaphysics are nowise antagonistic; they are complementary the one to the other. But though the man of science can afford to ignore

metaphysics, the metaphysician cannot afford to ignore science; for science provides him with the data of which it is his endeavor to render a final account. Whether man as a rational being can afford to ignore either is a matter of opinion.

Now it will no doubt be said that if this delimitation be accepted, the sphere of science, though it includes physical science and biology, fails to embrace mental science, psychology, ethics, æsthetics, and logic. Nothing, however, could be further from my intention than to suggest a delimitation which does anything of the sort. The data of mental science are, no less than the data of physical science, provided in and through experience. The perception of an object is every whit as much part of the realities of experience as the object of perception. Indeed they are the same item of experience regarded from different points of view. As I have before urged it is only by the analysis of experience that we distinguish its objective from its subjective aspect. And though it may to some sound strange to claim the data of mental science as part of the universe of phenomena, yet I shall endeavor to make good this claim in my next essay. For the present it must suffice to say that the phenomena which we group under the head of mind are included in the sphere of science which deals with them in terms of related antecedence and sequence, just as it deals with the phenomena which we group under the head of matter in similar terms. The sphere of science thus has two hemispheres—physical and mental respectively. The more clearly we distinguish them the better. For when idealism attempts to explain physical changes in terms of sensation or perception; and when materialism attempts to deal with mental states as the product of physical antecedents, there is no end to the confusion that results.

Even when this source of misunderstanding has been removed, there still remains a further criticism of the usage suggested. For "the study of the ultimate grounds of all knowledge and of all science of whatsoever kind—the science of *Epistemology*" is excluded. This *scientia scientiarum* which forms the subject of Dr. St. George Mivart's volume on *The Groundwork of Science* can find no place, it will be said, in the proposed scheme of delimitation. I

believe, however, that it does find its true and legitimate place in the sphere of metaphysics. It deals, not with observed moves among the pieces on the chequered chess-board of experience, but with the question how there comes to be a game to be played, and, when this is settled, how the knights and pawns are moved each with a distinctive path across the board. This is a very different problem: one so different that it is well to distinguish it by name. Of course, if it be granted that the problems are different we may still broaden our definition of the term science so as to include them both. But it may be urged that finer and therefore sharper distinctions in terms are often helpful to clearer distinctions in thought. And if we can more readily keep our problems in separate intellectual pigeon-holes by thus giving them quite different labels, much confusion may be avoided, and precision of thought may be fostered.

In my last essay I discussed the question of vitalism in some of its aspects, and no doubt said many things which failed to carry conviction. Had they been generally admitted the saying of them would have been a work of supererogation. The essence of my contention was this: that if we grant to the vitalist all that he claims to have established, if we admit that living matter presents us with phenomena which are observed nowhere else in the known universe, these phenomena must be accepted as part of the data which it is the business of the man of science to elucidate in terms of related antecedence and sequence. If as man of science he be unable to explain in these terms the mode of genesis of the phenomena in question this may be because he has reached the limits of scientific interpretation; and there he must leave the matter, and pass on to other problems. If on the other hand he invoke the conception of vital force not as the physical antecedent but as the underlying cause of the phenomena, let him do so frankly in the name of metaphysics and not of science. Metaphysicians will welcome any suggestions which he has to make in their special field of work. But they will remind him that not here only in the field of vital phenomena, but throughout the whole realm of nature, are there diverse manifestations of Force, as the cause of phenomenal

changes; and that no matter where we probe beneath the surface of experience we find the variously selective modes of influence of this Force. The frosted pattern on the window-pane presents, in a different form, the same metaphysical problem as the fern frond to which it presents a superficial resemblance. If once the appeal be made by the man of science to metaphysical causes he must realise that not only here but everywhere are they in ceaseless operation.

The sketch of vitalism that was presented dealt only, however, with certain properties of living matter on which some stress has of late been laid. I purpose in this essay to take a somewhat wider survey of biological facts and their interpretation. From whatever point of view we regard the problem of life, we see in the simplest living organism a theatre in which the atomic and molecular characters enact a drama nowhere enacted in just this way on any inorganic stage. There is a continuous give and take both of matter and energy which is scarcely so much as hinted at elsewhere; there is a unified sequence of changes constituting a less or more complex life-history; and there is through the process of reproduction a continuous stream of sequence, of much wider range in time. In place of the short life-history of the individual, we have the indefinitely longer life-history of the species. These phenomena are so central for biology that it will be well to make them the starting-point of our further consideration of life-problems.

It is a familiar fact that so simple an organism as the *Amœba*—a mere speck of protoplasmic foam—presents in miniature, and in a far less complicated form than is found in the higher animals and plants, all the life-processes which are commonly regarded as essential. Here in the first place is that assimilation of congruous substances, food and oxygen, thus intimately incorporated with its protoplasm, which is one of the distinctive marks of all life. And here too is that not less distinctive process of partial disintegration. Only through disintegration of its substance does protoplasm give indications of its vital activity. In its absence there would be no sign of life. On the other hand, complete disintegration would result in decomposition, the mark not of life but of death. Between these extremes lies the mean of vital activity, shown in its essential

features as clearly in the amœba as in man. Partial disintegration provides for change, the concomitant of activity, and for continuity preserving individual identity; while it renders necessary the process of assimilation by which the loss due to partial disintegration is made good, and by which through incorporation new substance is caught up into the stream of continuous individuality.

Is it a matter for wonder that the cause of these phenomena, seen in a microscopic speck of living matter, has been regarded as "a mystery transcending naturalistic conception; as an alien influx into nature, baffling scientific interpretation." And yet I believe that this attitude of mind is due, partly to a misconception of the function of scientific interpretation, and partly to influences arising from the course pursued by the historical development of scientific knowledge. The function of science is to formulate and to express in generalised terms the related antecedences and sequences which are observed to occur in protoplasm. This can already be done with some approach to precision and accuracy. There is at any rate little reason to doubt that this goal of scientific endeavor can be reached by an extension and refinement of scientific method. But the cause of the phenomena does not fall within the purview of science; it is a metaphysical conception. It is no more (and no less) a "mystery" than all causation throughout the universe of phenomena is a mystery. And if it be said that the origin of life on our planet cannot be expressed in scientific terms of related antecedence and sequence, this may be either admitted or denied according to the sense in which the words are to be taken. It must be freely admitted that we do not know the physical antecedents of the first speck of living matter that appeared on this earth; but it must not be admitted that this honest confession of ignorance implies that there were no such physical antecedents. It may be admitted that when life first appeared new modes of the interaction of material particles occurred; new data were afforded for science to deal with in accordance with its method of interpretation; but it must not be admitted that this necessarily implies an "alien influx into nature." Neither science nor metaphysics now believes in any such alien influx. There is nothing alien introduced

into nature from without; all the influences at work are inherent in the fibre of her being. Or, if this metaphysical assumption be not accepted, if the doctrine of occasional influxes from without be an article of faith, it should surely be applied consistently. There are thousands of chemical compounds, each with a distinctive group of physical properties, found thus combined nowhere else in nature, which took their origin under appropriate conditions at successive points of time during the slow cooling of the earth. There may even have been a time in the long ago past, when the elements were still held separate in the fervent heat of the planetary vapor, when compounds had not yet had their origin in the history of this past of the solar system. If this be so, there must have been an epoch in evolution when these new data emerged for science to deal with, just as there was a later epoch in evolution when other new data, those presented by life, emerged in an analogous manner.

If the mystery of life, therefore, be said to baffle scientific interpretation, this is because it suggests problems with which science as such should not attempt to deal. The causes of vital phenomena (as of other phenomena) lie deeper than the probe of science can reach. But why is this sense of mystery especially evoked in some minds by the contemplation of life? Partly, I think, because the scientific interpretation of organic processes is so recent and in many respects so incomplete. People have grown so accustomed to the metaphysical assumptions employed by physicists and chemists when they speak of the architecture of crystalline forces and the selective affinity of atoms, they have been wont for so long to accept the "mysteries" of crystallisation and of chemical union, that the metaphysical causes have coalesced with the descriptions and explanations of science, and the joint products are now, through custom, cheerfully accepted as "natural." Where the phenomena presented by protoplasm are in question, this coalescence has not yet taken place; the metaphysical element is on the one hand proclaimed as inexplicable on naturalistic methods of interpretation, and on the other hand denied even by those who talk glibly of physical forces. But in due course of time this, too,

will be commonly accepted as perfectly natural; and the battle will rage elsewhere.

Returning now to our amœba, in addition to the primary characteristics of concomitant or alternating integration and disintegration in a continuous and unified sequence, there are other secondary phenomena which are either the direct outcome of the primary characteristics or are intimately associated with them. Disintegration is associated with movements which, even in so lowly an organism, are to some extent in adaptation to the needs of its simple mode of life; and it gives rise to products, some of which must be got rid of as useless if not deleterious but some of which may be utilised to prepare the food for assimilation. It also under special conditions may give rise to a tough substance forming a protective layer or coat around the protoplasm. Thus by its life-processes the amœba produces excretions, that is to say waste products to be got rid of, and secretions, that is to say disintegration products which may serve a useful purpose. Lastly (for only certain leading features need be enumerated) the amœba presents the phenomena of reproduction in their simplest expression. A specialised part of the protoplasm, the nucleus, divides into two portions. According to some biologists the peculiar function of this nucleus is to control the reproductive process, using this phrase in a broad sense. What are the antecedent conditions which determine its division we do not fully know; but we do know that the division is the visible and seemingly related antecedent of a further change—the splitting of the whole amœba into two, which henceforth lead a separate life. This reproductive process is, however, so essential and so peculiar to life that it cannot be regarded as of secondary importance. It must take rank with the concomitant integration and disintegration as a primary characteristic. It opens the way to a divergence of continuous lines. It is distinctive of living matter and does not find a parallel in the inorganic world.

Attached to the stems of weeds and other bodies, may be found another microscopic organism which is also like the amœba a dweller in water. This is the Bell-animalcule or vorticella. Shaped like a translucent wine-glass on a long stalk it shows a very marked

advance in structure on the amœba. Whereas the amœba has no definite mouth but can take in food-particles at any part of its substance, the vorticella has a funnel leading inwards towards its central substance. The rim of the wine-glass and the orifice of the funnel are provided with delicate waving cilia, so called because they resemble microscopic eyelashes composed of transparent living matter. Their constant movements set up currents in the water which draw in the minute fragments of animal or vegetable matter which serve for food and which, passing to the narrow end of the funnel, burst through into the inner substance of the vorticella. This substance like that of amœba exhibits the balanced processes of assimilation and disintegration. But, apart from the orderly play of the cilia, the movements are more clearly adaptive. On any sudden jar, or the introduction of an irritant, the long-stalk suddenly coils up through the contraction of a central fibre, the rim of the wine-glass is turned in, the cilia disappear from view and the expansive end becomes contracted and bunched up. There is a band-shaped nucleus, which in preparation for the reproductive process divides, half passing into each of the two individuals into which the vorticella shortly afterwards splits. But there is also observable from time to time a different process. Free swimming forms are budded off from the vorticella (with nucleus division) and these unite with other stalked individuals, the two nuclei fusing to form a new combined nucleus. And after this, the multiplication by the ordinary process of fission (or splitting into two individuals) goes on more rapidly and with increased vigor. So that vorticella exhibits a higher degree of differentiation both of structure and of orderly movements; it shows a process of conjugation, or fusion of nuclei preparatory to reproduction,—a process only occasionally observed in amœba; and, in general, exemplifies a more complex sequence of changes, constituting its life-history, and more delicate and definite adaptation of protoplasmic response to surrounding conditions.

Now if we place side by side on the same slip of glass an amœba, a vorticella, and the fertilised ovum or egg-cell of a rabbit, and examine them under a microscope of moderately high magni-

fying power, we should probably say that the ovum is far more like the amœba than is the vorticella. And yet the rabbit's ovum somehow inherits the power of developing, under appropriate conditions in the maternal uterus, into so wonderfully complicated an organism as that known to zoölogists as *Lepus cuniculus*, a name which sums up peculiarities of structure which it would take a large volume adequately to describe. In some way, which at present we only dimly understand, that little speck of protoplasm, a very pin-point of life, bears the impress of changes wrought on the continuous stream of living substance throughout long ages of geological history. We may wonder how so much potentiality can possibly lie hidden in so little substance—according to some biologists in only a part of the nucleus of the egg—yet, in truth, there is nothing here which is not in principle involved in the fission of the lowly amœba. The essential characteristic of life, on which all this depends, is protoplasmic continuity. This it is which so links the chain of sequence that we may believe, by a legitimate exercise of the faith with which after all science is so abundantly endowed, that changes wrought upon this continuous line of protoplasm so many ages ago still tremble and thrill through its substance to-day. And if we realise that the germinal substance from which the little rabbit develops is (omitting reference to fertilisation) just a little bit of the very same germinal substance from which its mother was in like manner developed, it would be surprising indeed if it grew up into anything very different from that mother.

At the same time though, regarded from the standpoint of science, there are present just the conditions which would give the requisite continuity to form an abiding basis for a prolonged series of antecedent and sequent changes, yet the necessity for assuming some underlying cause, immanent in the fertilised ovum, through the operation of which the sequence in any given case is manifested —this necessity seems to be pressed home on the metaphysician with unusual force. The man of science does and should regard this as outside the problem he sets before himself for solution. But in denying the presence of any such underlying cause, should he

do so, he seems to be going beyond his province, and to be overstepping the limits of his boasted agnosticism.

The embryo rabbit is sheltered and nourished within the uterus of its mother and even after birth lies hidden from its enemies and is further nourished and fostered within the burrow. But the frog's spawn which floats on the water of the pond from which we obtained amœba and vorticella is not thus nourished or protected. Each of the little dark beads, within the jelly-like collection of transparent spheres, is a fertilised egg. The frog, like the rabbit, belongs to that extensive and diverse group of animals in which a number of separate or loosely connected particles of living matter are associated together. In the protozoa where the particles or cells have an independent existence the method of reproduction is the separation of a part of that cell for the continuance of the race. In the metazoa to which the frog and the rabbit belong, where there is an aggregation and integration of cells into a complex group with differentiation of function among the many constituent units, we have the distinction into two broadly contrasted groups, —body-cells and germ-cells. The body-cells are classified according to their physiological function into those which subserve the processes of nutrition, respiration, excretion, and so forth. To the germ-cells nature entrusts the essential rôle of reproduction and the continuance of the race. According to modern interpretation the body-cells canot give origin to germ-cells; but it is the essential function of germ-cells, in normal process of development, to give origin to the body-cells of offspring in succeeding generations. Whether the body-cells can in definite ways influence the germ-cells so as to impress upon them, and thus render hereditary, characters which they have themselves acquired, is a question under discussion. In any case, whereas a germ-cell, fertilised in many cases though not in all, by union with another cell produced by a member of the opposite sex, gives rise not only to the bodily framework and diverse tissues of the embryo but also to the germ-cells which may in due course play a similar rôle; the body-cells, though they may divide and subdivide to form other like units, do not, when once fairly started on their special career, give rise to

germ-cells capable of reproducing the whole organism. And eventually death is as distinctively their heritage, as continuity of life is the heritage of those which are the bearers of the germinal substance. What we have specially to note, however, is that, notwithstanding the multiplicity of amœba-like units which are associated together to build up the frog, the organism still retains such unity as to justify us in speaking of it as a single individual; and that each germ-cell, duly fertilised, carries on the torch of life which is extinguished by death, throughout the rest of the unity which we term the frog.

The fertilised ovum of the frog contains within the meshes of the network of protoplasm of which it is composed a certain amount of food-yolk, and in the early stages of development this affords material for the protoplasm to assimilate. The nucleus divides and subdivides again and again, and the protoplasm splits into a great number of separate or loosely connected units,—the cells. These gradually differentiate and group themselves into the organs and tissues. During these early stages the frog does not feed; the food-yolk contained in the ovum provides sufficient material for the assimilation of the protoplasm of the differentiating cells,—which do not part company and go each on its own way as in the amœba, but remain associated, merging their individualities in that of a compound organism, each ministering to the others and being ministered to by them for the common good of their joint product. But ere long the minute tadpole is hatched, attaches itself by suckers under the chin to the jelly-like substance in which the eggs were imbedded, or to bits of decomposing animal or vegetable matter, and feeds by means of horny jaws. It obtains oxygen from the water through the instrumentality of gills, and swims like a fish by movements of its tail. Its mode of life, its modes of feeding, breathing, and so forth, are well nigh as different from those of the parent frog as they can be. But all the time it is undergoing changes which gradually fit it for its later life. Lungs and limbs are developing, though for some time they are useless. And so the metamorphosis goes on, until at last, the legs having grown apace, the head and jaws having undergone marked changes, the limbs

having acquired a considerable size and some strength, the tail having shrunk to a pointed stump, by a final shedding of the skin the tadpole becomes a frog, and with some further alterations of the relative proportions of its parts, reaches the adult stage of its not uneventful life-history.

Such being in brief outline the facts—which are indeed sufficiently familiar—let us consider their scientific interpretation. They unquestionably present us with a chain of related antecedents and consequents linked into an orderly, consistent, and unified series, marked by a continuity of sequence not less than a diversity of phases. It is in some respects convenient to distinguish among the antecedents those which lie within and those which lie outside the organism; to regard the former as the distinctively vital or essential causes of change, and the latter as the environing or conditioning causes; the environing series having less of direct continuity than the vital. Thus we say that the development at this or that stage proceeds in due course if the conditions are favorable; and that, if the continuity along the developmental line fail and life ceases, this is not due to any lack of causal antecedents in the essentially vital series, but rather to a failure of the contributory aid afforded by the appropriate conditions. We may even say that a cause adequate to produce the effect is present but not the conditions under which alone this cause can be effectual. Convenient as it may be, however, from the biological point of view, to make this distinction—nay, justifiable as it is for the student of life to regard the inner vital cause as essential and the environment as to some extent accidental and merely permissive; still from the broader standpoint of logical scientific interpretation the causal antecedent is to be regarded as the totality of related phenomena which pass insensibly into that other totality of related phenomena which we call the sequent effect. In this way the whole series of events which constitute the life-history of the frog could with adequate knowledge be expressed in terms of related antecedence and sequence; and such expression, when duly generalised by the correlation of this with other life-histories, would afford an adequate

and satisfactory explanation of such phenomena from the standpoint of science.

Even supposing this were done, however, there still remains behind a question which would present itself to the metaphysician, though the man of science may be content to ignore it (nay, more, as man of science should resolutely exclude it, as non-scientific). That question would present itself in some such form as this: What is the underlying cause of the sequence which we observe? In other words: Why does this sequent effect issue from that antecedent cause?

Does the theory of biological evolution give an answer to this question? No, it does not. And the more thoroughly it realises its function, the more averse will it be to the pretense of doing so. It does, however, give answers—admittedly imperfect answers, it is true,—to the questions: By what steps has this life-history come to be what it is? What scientific causes have been at work? How has adaptation to environment been reached? I do not propose to discuss these answers; save one, and that very briefly. It is well known that organisms can accommodate themselves to their surrounding conditions, often by acquiring some modification of structure or habit. These are inherited, say some, and the adaptations we see are in large degree the accumulated results of such inheritance, each generation adding a little to the store. According to this answer, then, adaptation is reached by the inheritance of acquired characters. Its efficacy is denied in many quarters, it being contended that the supposed mode of inheritance is unproven. The second answer is summed up in the word selection, or in the phrase "survival of the fittest." This need not here be illustrated. A third answer makes appeal to a principle of orthogenesis; and concerning this answer a few words will not here be out of place.

Professor Eimer has told us through the pages of *The Monist* that orthogenesis is "definitely-directed and law-conforming evolution." He says further that "There is no chance in the transmutation of species. There is unconditioned conformity to law only. Definite evolution, orthogenesis, controls this transmutation. It can lead step by step from the simplest and most inconspicuous be-

ginnings to ever more perfect creations, gradually or by leaps; and the cause of this definite evolution is organic growth." But he also says that the evolutionary advancement of a group of individuals takes place when "they are more sensitive than their fellows to the outward influences that condition the transmutation"—the outward influence referred to being "climatic and nutritional conditions." And again we are told that "the main factor that conditions and promotes the formation of species is the activity, the continued use of certain organs." Now for those who desire carefully to distinguish between scientific and metaphysical causes, these statements of Professor Eimer seem to afford material for analysis. I do not feel equal to the task; but I would urge those who accept orthogenesis, or any form of the doctrine of determinate evolution, seriously to undertake it. Presumably (I speak with hesitation) organic growth as a cause of definite evolution is our old metaphysical friend, Life or Vital Principle. In any case it does not appear much more helpful from the scientific point of view to say that organic growth is the causal antecedent of evolution than to say that evolution is the causal antecedent of organic growth. Organic growth and evolution are for science the group of phenomena of which we seek to understand the conditioning antecedents. What is meant by unconditioned conformity to law under the conditions of climate, nutrition, and exercise, I do not presume even to hazard a guess. The phrase "definite evolution" might, one would suppose, be strictly paralleled by the phrase "definite transmutation"; but, in that case, how definite evolution can control transmutation presents a puzzle unless it is a roundabout way of saying that evolution or transmutation is self-controlling. The word chance would seem to be so used as to imply an absence of "conformity to law" (an implication which Darwin expressly excluded); whereas it should mean conformity to law the particular application of which in the given case eludes our powers of discrimination. Those who have been laboring for a generation to formulate the laws of evolution can hardly be expected to accept the qualification "law-conforming" as specially distinctive of orthogenesis.

It may be said that these are mere verbal criticisms. Let us then go to the heart of the matter. If underlying orthogenesis there is assumed an internal force causing organisms to shoot into certain forms, this is, *quâ* force, a metaphysical conception, and should be frankly stated and regarded as such. In this way the polar forces which control the building of crystals should, I have urged, be stated and regarded. But crystallographers as students of science have done something more than the believers in orthogenesis have yet accomplished, or indeed show hopeful signs of accomplishing. For quite apart from any assumption of underlying forces, they have formulated the laws of crystallographic phenomena, as phenomena, in a way which amply satisfies the requirements of scientific interpretation. Has anything of the sort, even making full allowances for the complexity of the subject-matter, been done by the believers in orthogenesis or determinate evolution? The suggestion that development ceases or halts at certain stages in an apparently arbitrary manner, the observation that the markings of lizards seem to replace one another in the direction from behind forwards, the partial or total disappearance, broadening, and fusion of the fundamental bands on some butterflies' wings, the curious effects of temperature on the colors of lepidoptera, the effects of salinity on certain brine-shrimps, and other cases of apparently definite and determinate transmutations *per saltum*, even granting that the changes of structure are, strictly speaking, hereditary,—these are matters of interest which demand fuller investigation of their antecedent conditions. But can we at present extract from them, after the method of science, anything like broad, stable and widely accepted generalisations—generalisations which force themselves on the acceptance of all who study the facts in a careful, patient, and systematic manner? I think not. I see no *a priori* objection to orthogenesis. On the contrary, it seems reasonable to suppose that since inorganic matter runs into definite forms—simply as a matter of observation—so should organic matter tend to run into *its* definite forms. But reasonable as it may be from the *a priori* point of view, there seems remarkably little *a posteriori* evidence *capable of scientific generalisation.*

And till such is presented, biologists will be well advised to treat with that scepticism, which is the foster-mother of conviction, the suggestions of orthogenesis. And until the scientific position is secure, the metaphysical conception which underlies it partakes to the full of its insecurity. In any case any confusion of the scientific and metaphysical problems, of orthogenesis as an observed fact, and an underlying vital principle which causes it, will, I am convinced, do nothing but darken council and lead the unwary into logical pit-falls.

Reverting then to the life-history of the frog and steadily regarding it from the point of view of biology; granting too all that the most strenuous advocate of the distinctly Darwinian principle can claim from our fund of belief, and adding the results of such additional coöperating factors, orthogenetic or other, as the labors of biologists may place on a sound and logical footing; we may extend the chain of antecedence and sequence into a past that is dimly remote. No matter where we examine the series of events —no matter where we bisect its length by a plane cutting athwart the occurrences of any assignable moment of time, we find that these occurrences are the natural outcome of those which immediately preceded. Whatever metaphysics may have to say, science is assuredly right in holding firmly to its ideal,—the explanation of this as of other life-histories in terms of related antecedence and sequence, every stage in the long and complex process exemplifying the strictest relation of physical and biological cause and effect.

And what more can one desire! the Darwinian enthusiast will exclaim. Given variations of structure and habit, the causes or antecedents of which are ideally ascertainable, if not yet ascertained; given an extravagant output in offspring decimated again and again by the attacks of enemies and the incidence of adverse conditions so that only a favored and well-adapted few survive; given hereditary transmission by which the favorable adaptations to the stern conditions of life are handed on to successive generations and adding other possible coöperating factors, what elements in the problem presented for our study by a given organism remain unsolved, if not actually at all events ideally, by the method of sci-

ence? Or rising from the particular organism to the generalised principles of biology, when the perfected science of the future shall have said its last word, when we can not only confidently affirm that the totality of life and its conditions to-day is the natural outcome of the life and its conditions of yesterday and will surely give rise to the life and its conditions of to-morrow, but can as confidently describe in all its detail the assemblage of antecedents which constitute the cause and the assemblage of consequents which we name the effect, and can formulate the relationships of the one to the other,—what more remains to be learnt? The problem will be completely solved. No doubt this is only the ideal end to which science is slowly but surely advancing. That we have not reached the ideal is no answer to the claim of science,—which is in effect not that we have solved, but that we can thus solve, and completely solve, the problem of life.

To which the metaphysician will reply that with the supposed extension of our knowledge science will indeed have solved the problem which legitimately lies within its sphere. That problem is: Given life and its environment to describe in particular cases the sequence of events presented by individual development and racial evolution, and by generalising the results so reached to afford a scientific explanation of the phenomena. This is a magnificent problem, and one well worthy of the intellect of Darwin and of his followers. The results so far obtained call forth our sincere admiration and augur well for yet further advances in biological knowledge. But when science shall have said its last word and put the finishing touches on the picture elaborated with so much skill and care, there will still remain the fundamental data of biology presenting another problem with which metaphysics must attempt to deal. When the riddle of development and of evolution shall have been answered in terms of science, the riddle of life will still remain unsolved and insoluble in these terms. The question, What is life? will then as now press for an answer. Such is the counter-claim of the metaphysician.

Now in considering the validity of this claim it must first be asked whether the word *life* is used in quite the same sense by man

of science and metaphysician. For if not, there is no limit to the cross-questions and crooked answers which may—which indeed often do—exasperate us by their futility. Let us endeavor clearly to distinguish. As used by the man of science the term *life* comprises an observable sequence of phenomena. We can neither say that life is caused by the phenomena nor that the phenomena are the cause of life. The term is used not with a causal but with a descriptive signification. For the sequençe itself is just that which characterises what the biologist terms life. From the strictly biological point of view this group of natural sequences *is* life; and though he may speak of them as the phenomena *of* life, all that is meant by this expression is that this or that particular phenomenon falls within the group to which the term vital is properly applicable. This is a perfectly legitimate and logical position. So in like manner is gravitation a term under which are comprised certain observable movements of inorganic masses. When we say that the fall of a stone to the earth is one of the phenomena of gravitation, what is meant is that this particular fact falls within a certain group. From the strictly physical standpoint the phenomena are neither the cause nor the product of gravitation. For gravity as a cause of motion is a metaphysical conception. Nor are certain other phenomena, those which are studied by the zoölogist, from the strictly biological standpoint either the cause or the product of life. They are simply grouped under this heading.

On the other hand, when the metaphysician uses the term *life*, he has in view the hidden cause or *raison d'être* of the phenomena which the biologist describes under this heading. Let us hear what he has to say in favor of the assumption that such a cause exists. First of all, from a general point of view he urges, as we have seen, that not only has every sequent state a correlative antecedent, but the sequence itself must have a cause. When pressed, however, to lay bare the grounds of this assertion, the metaphysician can only reply that this is a universal postulate of reason; or in other words, that apart from such an assumption the sequence is inexplicable. When further pressed, he is forced to assume that this underlying cause is itself uncaused,—is self-existent. Why

then, it may be asked, should we not stop a stage short of that which the metaphysician postulates, and assume that the phenomenal sequence is itself uncaused and self-existent? To which the metaphysician replies: Because the self-existence of phenomena is unthinkable. Is not this, however, some will ask, a verbal quibble? We are led, on the Socratic method, to admit that the observed facts are termed phenomena; we are then bidden to note that the word "phenomena" is equivalent to "appearances"; and having thus fallen into the trap, we are asked by the metaphysician whether they must not logically be appearances of an underlying force which causes them to appear. But there is surely something stronger in the metaphysician's contention than a skilful manipulation of words, more ingenious than ingenuous. The argument really turns not on the use of words but on the nature of experience. Firmly as we may believe in the practical realities of experience and in the orderly sequence of phenomena, we seem forced to confess (*pace* Dr. St. George Mivart) that these practical and proximate realities are only the expression for sense and the scientific knowledge founded thereon, of the ultimate reality which lies beneath and behind them —of which they are the expression or manifestation. In any case, for those—and few modern thinkers will be excluded from their number—who are unable to accept the hypothesis that phenomena are self-existent, there only remain the alternatives of metaphysical agnosticism and of some sort of metaphysical assumption. Either the mode of origin of phenomena is unknowable and may therefore be ignored, or they are caused by some sort of noumenal existence, the nature of which metaphysics may strive to elucidate.

This being in outline the general thesis for which the metaphysician contends he claims that any such elucidation which he attempts should be regarded, not as antagonistic to the assured results of scientific research, but as supplementary to them. Now science in dealing with phenomena is impressed not only with the rich and multifarious diversity of the cosmos but with the fact that it is a cosmos, exhibiting at any rate so much unity as to render broad generalisations applicable to wide stretches of the extensive territory to be surveyed. Metaphysics accepts from science the

principle of analysis by which the intersecting strands of the complex web of phenomena are disentangled or traced, across the world-canvas, and the principle of synthesis by which the trend common to groups of strands is expressed in natural law. And although metaphysics tends to lay more stress on the unity of the cosmic cause than on the diversity of manifestation; although it regards analysis as but a means to the ultimate end of synthesis, yet it does not here diverge widely from science in its broader and more philosophical aspect. For science, too, ever strives towards unity of interpretation and aims constantly at a broader and more comprehensive synthesis, to which end its most minute analysis is but an effective means.

Passing now to matters of greater detail metaphysics utilises the work accomplished by science in its analysis of phenomena. Accepting the Newtonian theory of gravitation as applicable to a wide and homogeneous group of observed facts, it urges on the one hand that these facts are inexplicable unless force is assumed as a cause of motion, and on the other hand that this assumption should be regarded as frankly metaphysical, begging thinkers in general and physicists in particular to distinguish carefully between the antecedences and sequences of scientific interpretation and their causes as lying behind or beneath the phenomenal veil; imploring them to place in different categories "force" the mathematical expression of rate of change and "Force" of which this change is the phenomenal expression. So, too, in all cases of interpretation in the wide field of inorganic nature. So long as the chemist deals with combinations, reactions, and dissociations in terms of antecedence and sequence he is stating facts of observation, and by generalising them rises to the laws of chemical change. But when he invokes chemical attractions and affinities, not as the expressions of observed reactions but as the cause of chemical phenomena, he is consciously or unconsciously dipping into metaphysics. So long as the man of science describes the facts and conditions of crystallographic synthesis and bases his generalisations thereon, he is concerned with matters which admittedly fall within his province. But when he invokes the play of crystalline forces to account for

the phenomena he is a metaphysician *malgré lui*. For it is the province of metaphysics to search for the causes of which phenomena are the manifestation in experience. Custom has, however, in large degree sanctioned these metaphysical assumptions. And when chemists and physicists talk of their chemical and physical forces as the cause of the attractions or repulsions they observe, few are found to enter a word of protest. It is otherwise when vital phenomena are under consideration. If so much as a hint is expressed of vital force as the cause of physiological phenomena, chemists and physicists who have been talking and writing freely of chemical and physical forces are among the first to be up in arms and are ready to slay with weapons of sharpest scorn the vitalist as a traitor to the cause of science. It is in vain for him to urge that it is only *qud* metaphysician that he is a vitalist, or that, as man of science, he is content to be a student of phenomena as such. He is branded as a heretic; and his good deeds will scarcely atone for his false faith.

But there are degrees of heresy. There is the heretic who sins rather in word than in thought; and there is the heretic of deeper dye whose mind is fatally perverted. The former is he for whom vital force is merely a convenient expression for the combined action in subtle relations of chemical and physical forces. The latter —he whose case is past praying for—assumes a special mode of causal activity superadded to the play of the chemical and physical forces which he assumes to be also in operation. But if we are to admit any reference to metaphysical forces it is difficult to see what *a priori* grounds there are for rejecting his assumption of a special mode of force-operation in vital phenomena, that is to say, so long as special modes of operation are admitted in dealing with the phenomena of gravitation, cohesion, electrical and chemical actions, crystalline synthesis, and so forth. It would almost seem as if some students of inorganic nature believe that they have worked out a scheme of the forces in operation, and are prepared to proclaim: "Thus far you may go in metaphysical assumption and no farther. *Our* metaphysical assumptions (often, by the way, not recognised as such) are orthodox and admissible; any others are

heterodox and altogether damnable." Such an *a priori* attitude savors so strongly of dogmatism that it may be set on one side for the ultramontane pulpits of pseudo-science.

A position deserving of more respectful consideration is taken up by those who urge that there is nothing in the observed facts of biology to justify the assumption of the special operation of a distinctively vital force. Here the metaphysician must accept the data afforded to him by science. He must study at first or second hand the observed phenomena and endeavor to determine whether chemical and physical forces adequately account for them without remainder. He in turn must studiously avoid dogmatism; and even if there seem to be a remainder must invoke a specially vital force only as an hypothesis, the final necessity for which time alone can decide.

Now the question thus suggested is really an exceedingly difficult one to answer. For if vital processes are, as many contend, due to the subtle and intricate interaction of those forces whose simpler and less compounded action is familiar in the inorganic world, this very complexity, precluding, as it does, effective analysis under the conditions presented by the living organism, may be held sufficient to account for any apparent idiosyncrasy in the resultants. On the other hand those who take a different view and contend that in addition to complex physical and chemical reactions, admittedly present, there is a remainder for which these forces fail to render an adequate account, may urge that this complexity serves merely to hide from all but the most searching scrutiny the essentially vital changes with which they are associated. And here lies the peculiar interest and value of the contention so ably put forward by Professor Japp in the address on which I ventured to comment in the last essay. For he there urged that life-products have certain optical properties which imply a selective agency of a kind otherwise unknown,—of a kind which cannot reasonably be attributed to the interaction of forces familiar to the student of chemistry and physics. If this contention be well founded, we have, as Professor Japp points out (though he must not be held responsible for this way of putting it) just the kind of

evidence which is held by the metaphysician to justify the assumption of a special vital principle.

But even suppose that criticism and further knowledge render the conception of a specially differentiated vital force untenable, and demonstrate that life-processes owe their peculiarity wholly to certain intricate interactions of chemical and physical forces, it must again be pointed out that the existence of these forces is a metaphysical assumption, and that the term vital may still be conveniently applicable to the peculiarity of this particular mode of interaction which is found nowhere else in nature.

Let us, however, leaving generalities, bring the question down to the level of the practical experience, of, let us say, the embryologist who is dealing with the development of the chick in the egg. First, there is the series of changes in the nucleus of the ovum, the orderly marshalling and splitting of microscopic rods of deeply staining substance, and all the subtle attractions and repulsions involved in the maturation of the reproductive cell; next there is the further series of changes accompanying the union of sperm-nucleus and egg-nucleus in the process of fertilisation when the attractions have all the appearance of being highly special in their nature and peculiar not only to life but to this particular phase of life. Then there is the repeated division of the new combined nucleus and the formation of the superficial patch of delicate skin-like tissue known as the blastoderm; and following this the gradual differentiation of cell-products into the three layers from which all the organs and tissues are formed by further differentiation of structure with physiological division of labor. We need not follow the familiar stages of development in detail, the origin of blood-vessels and blood-cells, the formation of the axial supporting rod or notochord, the establishment of the central nervous system, the outgrowth of efferent and the ingrowth of afferent nerve-axes, the development of sense-organs, the setting aside of patches of relatively undifferentiated cells in the lining of the body-cavity for reproductive purposes, the differentiation of the kidneys and their ducts and the closely associated ducts of the reproductive system, all the orderly outgrowths from the alimentary tube with the formation of lungs,

liver, and pancreas, the establishment of cartilage and its conversion into duly related bones, the production by the skin of claws, beak, and down-feathers, and in general all the differentiations of cell-structure and cell-products which, under appropriate conditions of warmth and moisture, accompany the passage from the relatively simple egg into that marvellous going concern which emerges as a chick.

Now we must once more distinguish, even at the risk of wearisome reiteration, between the scientific explanation of these phenomena and the metaphysical implications which they may (or may not) suggest. Granted that the whole series of changes is an orderly sequence; granted that a full knowledge of any one stage would enable us accurately to predict the next stage on the basis of previous experience; granted that an adequate study of this and many other particular cases of development would enable us to formulate the generalised results of the knowledge gained by experience in the form of embryological laws; granted that by yet further extension of our knowledge the whole, on deeper analysis, could be expressed in terms of the movements of material particles, atomic or molecular; granted that the laws of the character and rate of these movements could be duly formulated; granted finally that the whole series of evolutional changes, stretching back into a dim and remote past, could be summed up and presented to the eye and the intellect of science; then the whole problem would be completely solved from the strictly scientific standpoint without the introduction of a single metaphysical assumption. We are indeed at present far enough off from any such complete solution; but any objection based on such grounds may be ruled out as not to the point. If the groundwork and foundations of our science are secure —and this groundwork is (again *pace* Dr. Mivart) not composed of metaphysical assumptions but of the data and laws of experience— such a solution may be foreseen, if never reached, by carrying the curve of scientific progress to its ideal limit. Here science reaches the end of its tether. Its range is surely wide enough to satisfy the hungriest of scientific appetites. But the intellect of man is omnivorous and not to be satisfied. It says: "Notwithstanding this

rich table of knowledge you set before me, I still have a craving for another kind of food,—the reason of it all; what makes the particles move as we see them move; what drives the wheels of life, as it drives the planets in their courses; what impels the egg to go through its series of developmental changes; what hurries on the frog through its strange life-history?" Now, the answer of metaphysical agnosticism to all this is simply: We don't know; which is an honest confession of ignorance. The answer of the scoffer is: I don't care; which sounds strange from the lips of a rational being. The answer of the metaphysician at the present stage of our inquiry is, Force. This Force is assumed to be self-existent. Phenomenal sequence is regarded as the effect; noumenal Force the cause. It is pure assumption and may be safely disregarded by the man of science as such.

But if we introduce the conception of Force at all; if we speak of physical and chemical forces, let us be consistent and assume the omnipresence of Force throughout the universe of phenomena. The development of the egg, not less than the fall of a stone or the formation of a chemical compound, must be attributed to Force in general and to the play of forces in detail. Whether the sequence of embryological changes, hinted at rather than described above, necessitates a special manifestation of Force, termed vital, or a special mode of synthesis, which may also be termed vital, or simply expresses the resultants of a complex interaction of forces familiar in the inorganic sphere, we will not attempt to determine. The scientific data on which alone metaphysics can base its conclusions are insufficient. This, however, we may affirm: that if the conception of Force be introduced in any form, it is introduced as a metaphysical assumption; and if there be a special vital force, or a specially vital combination of inorganic forces—that is to say, differential modes of manifestation of the self-existent Cause—there is nothing here that may not be paralleled in other parts of the realm of nature. But, in the interests alike of science and of metaphysics, let us above all things distinguish carefully the problems of the one from the problems of the others.

BRISTOL, ENGLAND. C. LLOYD MORGAN.

FRIEDRICH NIETZSCHE'S UEBERMENSCH.

PHILOSOPHY in its narrow sense has come to-day to comprehend a great deal. It embraces not only the sciences that the university world considers, to which the last generation has added physiological psychology, but also such speculative results as transcend the circumscribed bounds of human knowledge and constitute systems whose purpose it is to satisfy the needs of a manifold human life. The investigations of the former may have enduring worth, as Kant's *Critique of Pure Reason*, or Lotze's *Metaphysics*; the latter, however, are wholly dependent on the *Zeitgeist*. When the latter meet the demands of the age that gives them birth, they immediately find an enthusiastic reception, and the fame of their promulgator reaches the remotest ends of the earth. Think of Hegel in the thirties and forties. However, just as soon as the character of the age changes, the new world-deliverer who appeared to bring humanity the light of salvation sinks into oblivion, and the deepest problems that fill the human breast remain in insoluble darkness. Every great world-movement in the philosophy of life is followed with the regularity of nature itself by an opposing movement. Hegel gave way to Schopenhauer, and Schopenhauer to Nietzsche, whose philosophy may be considered the dominant philosophy of the last decade of the new German Empire.

In the fifties, when a period of political tyranny resulting from the revolutionary movement of 1848 oppressed Germany, and the people lapsed into a state of hopeless despondency, the pessimism of Schopenhauer, which had thus far been ignored, was welcomed in almost every German home. By many the question whether life

was worth living was answered with an emphatic negative. Germany lent an attentive ear to the words of the great Frankfort prophet, who belittled existence and praised non-existence as the only happy condition. "Why this farce of life," he asked, "which on a small scale is a comedy and on a large scale a tragedy?"

However, the character of the age changed. As a result of the glorious victory over France, the despondency of the national mind was dissipated, and the consciousness of the individual regained its supremacy. The new German Empire sprang into existence, and in all fields of human endeavor there was a marvellous awakening. Is it any wonder that under conditions so radically altered an apostle of negation could no longer obtain a hearing? The Germans had gained the courage to affirm life, and looked hopefully into the future. The new German Empire demanded a philosophy which extolled this world, teaching that it was a place where the highest development might be attained. The intellectual giant Nietzsche, with his wonderful power of intuition discerning the needs of his age, an age characterised by restless, nervous, unceasing activity, affirmed life to the negation of all else. He advocated that the individual should be true to self, that is, should sacrifice the world on the altar of self. The non-ego must serve the ego, and the ego should dare to have no restraints.

Friedrich Nietzsche, son of a minister, was born in 1844 near Naumburg, a little city in the Prussian province of Saxony. The distinguished father died when his son was quite young, thus leaving the latter to develop in the freest manner under the tender influences of a loving mother and an affectionate sister. He was a marvellously precocious child. The work of his boyhood days was prophetic of the great rôle he was to play in the philosophy of the new German Empire. He himself tells us that when only thirteen years old he took hold of the problem of evil. "In an age," he says, "when thoughts on childhood's diversions and the Architect of the universe alternate in the undeveloped intellect, I dedicated to this problem my first literary effort, my first philosophical essay. If you would know my solution of this problem, I will own that I gave God the honor of making him Father of evil." When only

twenty-four he became professor of classical philology in Basel, a Swiss university. However, his work had been and was still to be greatly interrupted by poor health. He many times suffered excruciating pain in his eyes and head, and was finally compelled to withdraw temporarily from the university. He went to Sorrento, a health resort, in the hope of finding there a cure; however, he was disappointed. Often the supremest wish of his life was that death might come and give him a speedy release from his torment. Instead of sparing his intensely nervous nature that it might have a chance to recuperate, he resigned himself entirely to the developing of his ideas: he worked incessantly. Even during the progress of the Franco-Prussian war, the unparalleled enthusiasm and jubilation of his victorious people left him absolutely unmoved in the retiracy of his Alpine home, where he sat buried in his meditations on the fascinating problems of Greek and Roman culture.

In 1874 he was obliged to resign his professorship. His health had grown so much worse that he was incapacitated from performing the duties which his chair imposed upon him. Still, even in the most trying moments of his suffering, something spurred and goaded him to reveal that which a long time had lain fermenting in the depths of his fiery intellect. He, the incurable invalid, who endured pain as few have been compelled to suffer, became so intoxicated by the beautiful dreams of his fervid imagination that he grew almost oblivious of his bodily torment. His phantasy held before him in perfected form the ideal of a more highly developed, superior man, the *Uebermensch*, whom in the 'Eighties he introduced with subtle and irresistible eloquence to the world.

In his books, particularly *Morgenröte* (1881), *Die fröhliche Wissenschaft* (1882), *Also sprach Zarathustra* (1883–84), *Jenseits von Gut und Böse* (1886), *Zur Genealogie der Moral* (1887), *Götzendämmerung* (1889), he infused his fiery soul, coined his life's blood. "Of all that has been written," he says, "only that is worth while which has been written with blood. Write with blood, and you will realise that blood is spirit." He created a language of his own, over whose powers he wielded uncontrolled dominion. His words, which are winged with inspiration, reveal not only the sparkle and

heat, but also the fire of a great personality. "They rival painting in rendering nature, and music in reproducing sound." His style is characterised by idiomatic beauty, refined delicacy, epigrammatic sparkle, and subtle eloquence; it is the incarnation of his mighty individuality. Thoughts crowded irresistibly on his fertile mind, which in the first fire of inspiration, directly after they had arranged themselves, he put into tangible form. However, this flood of thoughts, the product of an overworked intellect, finally undermined the philosopher's nervous system. In 1889 the catastrophe came. The incurable invalid lost his mind, and had to be taken to the Jena insane asylum.

It was largely hatred of decadent humanity, with its low aims and ideals, that led Nietzsche to portray a higher type of man. He gives a picture of our present age that borders on caricature, an age which he claims fosters only degenerate human beings and destroys in their incipiency all movements that give promise of greatness. There is a complete absence of individuals, we are told, that have the ability to dominate the masses. Everywhere we find only the average man, *das zahme Haustier, ein Stück Heerdenvieh*, who has no will of his own, but is submissive to the great majority. Everywhere exist proletarian instincts, which render the development of a really superior nature an impossibility.

"Bad air, bad air," exclaims our philosopher with emphasis. In bad air only herd instincts can exist; all strong and healthful instincts are destroyed. Consigned by birth to surroundings which mean degeneration and death, we are greatly handicapped; but there is no reason why we should not strive to create a new environment, wherein we might breath the pure air of a higher and fuller life. Unfortunately, our cowardly consciences forbid our doing this. We suffer from satiety, weariness of self, and grow sick because of the imbecility of our wills: all the result of cowardly consciences. Disease of conscience, the greatest and most lamentable affection from which humanity has never recovered, deprives us of the courage to affirm life joyously and of the power to act nobly. It is the radical evil of our civilisation, whose infected atmosphere sees only proletarian instincts thrive. Those who might

develop into superior men suppress higher instincts, do the will of the majority, and are contented if in the course of a lifetime they gain, as a result of careful management, a good pastureland, on which they may graze in peace during their last days.

To rid ourselves of the faults of our modern culture, Nietzsche proposes to do nothing less than to create a new system of morals: there shall be an *Umwertung aller Werte.* A great, strong, superior man shall take the place of the world's *fin-de-siècle* imbecile. Time was when the decadent weaklings of to-day quickly succumbed in the struggle of existence, and when our false system of morals had no significance. Nietzsche refers to the civilisations of Greece and Rome, which represent the realisation of his ideals. It was first Nietzsche's intention to resurrect the Greek and Roman worlds, and on them, as a basis, to establish a new culture, a sort of second Renaissance. Among the Greeks and Romans the ideas conveyed by the words "good" and "evil," morally considered, were quite different from those of to-day. That was good which was strong, healthy, powerful, arbitrary, selfish, cruel: such one had to be to be a master, a high type of man. That was evil which was weak, sickly, humble, miserable, unhappy: such was the slave, the low type of man. Nietzsche admired particularly the old Romans because they said to the world, "The will of Rome be done," and it was done. Here genuine greatness was to be found; here was to be found the proper way of regarding things.

However, the slaves of the ancient world revolted, overcame the masters whom they had feared, and a directly opposite system of morals came into existence: Christianity succeeded Heathenism. It was an awful insurrection in the moral world, an insurrection in which the instincts of the weak triumphed over the instincts of the strong. Through Christianity the slaves took the most fearful revenge on their masters. The whole moral world assumed another aspect. All ethical notions grew to be different from what they had been under the rule of the masters. Good meant only that which arose from weakness: fear, humility, self-denial. These became the virtues of the new system of morals. All that before had been considered good was, according to the new code of morals,

considered evil, and *vice versa*. Thus the world became filled with despair. All consciousness of joy was suppressed. The Christian doctrines gained dominancy. To the weak, life was a burden, and they sought consolation in anticipation of future happiness. Existence they considered naught: in itself it meant nothing; it needed another and better life to make it complete. Those who were promised the haven of rest, the joys of a more perfect world, were the weak. The strong would have difficulty in gaining entrance. The result was that the virtues arising from weakness were sought and considered the end of human endeavor. On the other hand, the virtues arising from strength were suppressed, and the tame *Haustier* man was bred. During the Renaissance the lofty ideals of life cherished by the ancient Greeks and Romans again showed signs of gaining realisation; but with the democratic movement of the Reformation the vulgar instincts and impulses of the masses gained the upper hand. The Revolution also was a genuine plebeian movement, which saw the triumph of proletarianism. Of the few men of modern times whom Nietzsche would call really great, Napoleon is the most perfect representative of the *Uebermensch*.

Nietzsche hates Christianity, with its odor of plebeianism, with its prayerful and penitential atmosphere, with its hypocritical air of humility and self-abnegation, all of which are an indication of weakness. He calls the religion of the humble Nazarene the greatest example of counterfeiting the world has produced. Its system, based on love, is the direct cause of the degeneration of the strong and the elevation of the weak. Christianity, as well as every other system of belief and morals that savors of proletarianism, must be overcome. The weak must perish because they hinder the development and delay the coming of the *Uebermensch*. Instead of slave morals we must have master morals; instead of the rule of the many, the rule of the few; instead of a high proletariat and low aristocracy, a low proletariat and high aristocracy. Let the masses sink as low as they will; the classes must be highly bred. Occasionally there arises from the quagmire of plebeianism a Napoleon, whose will becomes the will of his age. To tell the truth, though, it is always a very fortunate combination of circum-

stances which produces such ideal types, because the world's theory of life is so hopelessly low. When, however, the morals which Nietzsche advocates become humanity's rule of life, then such god-like mortals will constitute the regnant minority.

The *Uebermensch* of Nietzsche is a full-blooded, highly-bred man, with sound and healthful instincts and impulses, which he obeys absolutely, regardless of everything —a man who allows none of the instincts and impulses which nature has given him to degenerate. The development of a regnant will, which shall never be thwarted, and which is the basis of the *Uebermensch's* whole being, is the high purpose of this magnificent specimen of the genus *homo*. All of the activities of the intellect are only manifestations of the regnant will. The great philosophies of every age have had only one endeavor, and that is, having made the world a product of thought, to place it into the hands of the will to be moulded. The history of philosophy is the history of the intellect translating itself into the forms of volition.

The *Uebermensch* recognises no higher power than himself, be it God or man. He obeys only the dictates of his own nature, does only his own regnant will. There is no God, he says. Belief in a God he declares to be a delusion. If a God exist, so his inner nature tells him, it is a being capable of limitless pleasure. Only the weak consider the voice of conscience the voice of a higher power. The *Uebermensch* acts just like a child: he never asks, Shall I do this or shall I do that? but he obeys the dictates of his inner nature and does his regnant will. No code of morals binds him. What are the codes of morals that exist among the civilised nations of the earth? Simply the habits and customs of the great masses. And what, pray, are the habits and customs of the world's proletariat compared with the instincts and impulses of the *Uebermensch's* superior mind? The fact is, no existing code of morals could possibly bind the *Uebermensch*, because he is *jenseits von Gut und Böse* in the common acceptation of these words. However, he gives good and evil other meanings. Good is to him that which serves life and the regnant will; evil is that which hinders life in its highest development and prevents the free action of the regnant will.

Only when a man obeys the dictates of his inner nature and does his regnant will may his actions be denominated good in the morals of the *Uebermensch*. The *Uebermensch* makes his will regnant against a world of opposition. He loves conflict because it awakens and strengthens his powers. Pity is to him an unknown feeling. If he were to exercise pity, it would be a sign of weakness, degeneration. All the great civilisations of the past saw in pity an element of weakness.

To the extermination of whatever stands in the way of the *Uebermensch*, Nietzsche lends a moral sanction. Thus the *Uebermensch* is a sort of beast of prey: he sees in life nothing more, or little more, than appropriating, robbing, overcoming, destroying. In a word, the *Uebermensch* is a sovereign individual, who, possessed of boundless power, sacrifices the world on the altar of self. Christ sought to deny self, and sacrificed self that others might live; the *Uebermensch* seeks to elevate self and to sacrifice others. Christ sought peace; the *Uebermensch* seeks strife. He is supremely happy when he can rise on the dead and wounded bodies of the weak; this strengthens his feeling of cruelty. Christ despised this life, because it is only a probationary period, and reward follows. The *Uebermensch* honors this life because he knows no other; to him it may be the means of the highest development, the source of the greatest pleasure.

This is Nietzscheism. To understand how Germany could produce so great an anarchist in the world of thought, one must know the Germany of the new German Empire. The influence of Nietzsche, the most popular thinker of the present generation, is simply phenomenal, far greater than that of any other widely known world-deliverer since the days of Schopenhauer. In the whole modern international literature echo the resounding notes of the new philosophy of life. Even Ibsen, who must be considered the greatest realist of this age, is a poetic promulgator of many of Nietzsche's teachings. Among others, four things have worked most potently in creating for Nietzsche a school of votaries who see in their teacher a new world-deliverer: these are the charm of

his style, the beauty of his thought, the greatness of his message, and the magic of his personality.

The right of the individual to obey absolutely all the instincts and impulses of his nature, to make his will regnant, whatever oppose it, to free himself from the habits and customs of our decadent age, to exalt self and the few who can rise, and degrade the many who must succumb that the few may rise the higher,—this is Nietzscheism, these are the claims of the *fin-de-siècle* world, to which Nietzsche has given the most lucid, concise, and powerful expression. Therefore, he who will know the *Zeitgeist* must know Nietzsche, of whom Richard Wagner said: "*O Freund! Genau genommen, sind Sie, nach meiner Frau, der einzige Gewinn, den mir das Leben zugeführt.*"

PYRMONT, GERMANY. HEINRICH GOEBEL.
GERMANTOWN, O. ERNEST ANTRIM.

IMMORALITY AS A PHILOSOPHIC PRINCIPLE.

NIETZSCHE'S EMOTIONALISM.

PHILOSOPHIES are world-conceptions presenting three main features: (1) A systematic comprehension of the knowledge of their age; (2) An emotional attitude toward the cosmos; and (3) A principle that will serve as a basis for rules of conduct. The first feature determines the worth of the several philosophical systems in the history of mankind, being the gist of that which will last, and giving them strength and backbone. The second one, however, appeals powerfully to the sentiments of those who are imbued with the same spirit and thus constitutes its immediate acceptability; while the ethics of a philosophy becomes the test by which its use and practicability can be measured. Our own ideal has been to harmonise these three features, by making the first the regulator of the second and basis of the third. What we need is truth; our fundamental emotion must be truthfulness, and our ethics must be a living of the truth. Truth is not something that we can fashion according to our pleasure; it is not subjective; its very nature is objectivity; but we must render it subjective by a love of truth; we must make it our own, and by doing so our conduct in life will unfailingly adjust itself. Former philosophies made the subjective element predominant, and thus every philosopher worked out a philosophy of his own, endeavoring to be individual and original. The aim of our philosophy has been to reduce the subjective to its proper sphere, and to establish, in agreement with the scientific spirit of the age, a philosophy of objective validity.

Among all the philosophies of modern times there is perhaps

none which in its inmost principle is more thoroughly opposed to our own than Nietzsche's, and yet there are some points of mutual contact which are well worth being pointed out. The problem which is at the basis of Nietzsche's thought is the same as in our philosophy, but our solution is radically different.[1]

Friedrich Nietzsche is a philosopher who astonishes his readers by the boldness with which he rebels against every tradition; tearing down the holiest and dearest things, preaching destruction of all rule, and looking with disdain upon the heap of ruins in which his revolutionary thoughts would leave the world.

FRIEDRICH NIETZSCHE.

For more than a century Germany has been the storm-center of philosophical thought. The commotions that started in the Fatherland reached other countries, France, England, and the United States, after they had lost their force at home. Kant's transcendentalism and Hegel's phenomenalism began to flourish among the English-speaking races after having become almost extinct in the home of their founders. Prof. R. M. Wenley of the

[1] For an account of Nietzsche's life and works we refer the reader to the article "Friedrich Nietzsche's Uebermensch," by Drs. Goebel and Antrim in the present number of *The Monist*.

University of Michigan, Ann Arbor, Mich., expresses this truth with his native Scotch wit in the statement which I do not hesitate to endorse, that "German professors when they die go to Oxford."

It is now about time that Schopenhauerianism and Nietzscheanism should reach us. The former has made its influence felt for a considerable time, and the latter is just making its appearance. Schopenhauer has been introduced to Anglo-Saxon readers by Haldane and Bailey Saunders; and Macmillan & Co. are now publishing translations of Nietzsche's works.[1]

Nietzsche represents a type of most modern date. He is a genius after the heart of Lombroso. He is abnormal,[2] titanic in his pretensions and aims, and, breaking down under the burden of his own thought, tragically ends his career in an insane asylum.

The mental derangement of Nietzsche may be an unhappy accident but appears to come as the natural result of his philosophy. Nietzsche, by nature modest and tractable, almost submissive, was, as a thinker, too proud to submit to anything, not even to truth. Schopenhauer had taught him that the intellect, the comprehension of truth, is a mere slave of the will. Truth has a purpose; it must accommodate itself to the self; the self is sovereign; the self wants to assert itself; the self alone has a right to exist; and the self that does not dare to be itself is a servile, menial creature. Therefore Nietzsche preaches the ethics of self-assertion and pride. He is too proud to recognise the duty of inquiry, the duty of adapting his

[1] Macmillan wisely began with the most noted books of Nietzsche's works, viz., *Thus Spake Zarathustra*, Vol. VIII.; *A Genealogy of Morals and Poems*, Vol. X.; and *The Case of Wagner*, *The Twilight of the Idols*, *Nietzsche Contra Wagner*, Vol. XI. We hope that the plan of publishing Nietzsche's complete works will not be abandoned.

[2] It is characteristic of Nominalistic thinkers, viz., of all those who do not recognise an objective norm for truth, health, reason, and normality of any kind, to regard the *average* as the sole method of finding a norm. If, however, the average type is the standard of measurement, the unusually excellent specimens, being rare in number, must be classed together with all other deviations from the average, and thus the genius is regarded as abnormal as much as the criminal,—a theory which has found many admirers in this age that is sicklied over with agnosticism, the modern offshoot of nominalism. The truth is that true genius (not the pseudo-genius of erratic minds, not the would-be genius of those who make a failure of life) is uncommonly normal,—I had almost said "abnormally normal."

mind to the world, or of recognising the cosmic order of the universe as superior to his self. He feels bigger than the cosmos; he is himself; and he wants to be himself. His own self is sovereign; and if the world is not satisfied to submit to his will, the world may go to ruin; if it breaks to pieces, it will cause him to laugh only; even if, on the other hand, his self in this conflict is forced to the wall, he will still not suffer himself from very pride to abandon his principle of the absolute sovereignty of selfhood.

Nietzsche's philosophy is unique in being throughout the expression of an emotion,—the proud sentiment of a self-sufficient sovereignty. It rejects with disdain both the methods of the intellect, which submits the problems of life to an investigation, and the demands of morality, which recognise the existence of duty. Nietzsche claims that there is no objective science save by the permission of the sovereign self, nor is there any "ought," except for slaves. He prides himself as "the first Immoralist."

NIETZSCHE THE NOMINALIST.

The history of philosophy from Plato to Nietzsche, according to Nietzsche, is a progress of the idea that objective truth (a conception of "the true world") is not only not attainable, but that it does not exist at all. He expresses this idea in his *Twilight of the Idols*, English edition, pp. 122–123, under the caption "How the 'True World' Finally Became a Fable," which reads as follows:

"The true world attainable by the wise, the pious, and the virtuous man,—he lives in it, he embodies it.

"(Oldest form of the idea, relatively rational, simple, and convincing. Transcription of the proposition, 'I, Plato, am the truth.')

"2. The true world unattainable at present, but promised to the wise, the pious, and the virtuous man (to the sinner who repents).

"(Progress of the idea: it becomes more refined, more insidious, more incomprehensible,—it becomes feminine, it becomes Christian.)

"3. The true world unattainable, undemonstrable, and unable to be promised; but even as conceived, a comfort, an obligation, and an imperative.

"(The old sun still, but shining only through mist and scepticism; the idea become sublime, pale, northerly, Kœnigsbergian.)

"4. The true world—unattainable? At any rate unattained. And being un-

attained also unknown. Consequently also neither comforting, saving, nor obligatory: what obligation could anything unknown lay upon us?

"(Gray morning. First yawning of reason. Cock-crowing of Positivism.)

"5. The 'true world'—an idea neither good for anything, nor even obligatory any longer,—an idea become useless and superfluous; consequently a refuted idea: let us do away with it!

"(Full day; breakfast; return of *bon sens* and cheerfulness; Plato blushing for shame; infernal noise of all free intellects.)

"6. We have done away with the true world: what world is left? perhaps the seeming? . . . But no! in doing away with the true, we have also done away with the seeming world!

"(Noon; the moment of the shortest shadow; end of the longest error; climax of mankind: *Incipit Zarathustra!*)"

The reader will ask, "What next?" Probably afternoon and evening, and then in the night the sun, which (according to Nietzsche) grew pale in the morning, will shine again.

According to Nietzsche the universe is not a cosmos but a chaos. He says (*La Gaya Scienza*, German edition, p. 148):

"The astral order in which we live is an exception. This order and the relative stability which is thereby caused, made the exception of exceptions possible,—the formation of organisms. The character-total of the world is into all eternity chaos, not in the sense of a missing necessity, but of missing order, articulation, form, beauty, wisdom, and as all our æsthetic humanities may be called."

In agreement with this conception of order, Nietzsche says of man, the rational animal:

"I fear that animals look upon man as a being of their own kind, which in a most dangerous way has lost the sound animal-sense,—as a lunatic animal, a laughing animal, a crying animal, a miserable animal." (*La Gaya Scienza*, German edition, p. 196.)

Man's reason, according to the consistent Nominalist view, is purely subjective and has no prototype in the objective world. John Stuart Mill regards the theorems of logic and mathematics, not only not as truths, but as positive untruths. He says:

"The points, lines, circles, and squares, which any one has in his mind, are (I apprehend) simply copies of the points, lines, circles, and squares which he has known in his experience. Our idea of a point, I apprehend to be simply our idea of the *minimum visible*, the smallest portion of surface which we can see. A line, as defined by geometers, is wholly inconceivable. We can reason about a line as

if it had no breadth; because we have a power, which is the foundation of all the control we can exercise over the operations of our minds; the power, when a perception is present to our senses, or a conception to our intellects, of *attending* to a part only of that perception or conception, instead of the whole. But we cannot *conceive* a line without breadth; we can form no mental picture of such a line: all the lines which we have in our minds are lines possessing breadth."

Nietzsche shows his nominalistic tendencies by repeatedly pronouncing the same propositions in almost literally the same words,[1] without, however, acknowledging the school in which he picked up this error.

It is quite true that mathematical lines and circles are human conceptions, but they are not purely subjective conceptions, still less untruths; they are great and important discoveries. They are not arbitrarily devised but constructed according to the laws of the uniformities that dominate existence. They represent actual features of the objective universe, and thus only is it possible that the astronomer through the calculation of mathematical curves can predict the motion of the stars. Reason is the key to the universe, because it is the reflex of the cosmic order, and the cosmic order, the intrinsic regularity and immanent harmony of the uniformities of nature are not a subjective illusion but an objective reality.

When Goethe claims that all things transitory are symbols of that which is intransitory and eternal, Nietzsche answers that the idea of anything intransitory is a mere symbol, and God (the idea of anything eternal) a poet's lie.

Like a mocking-bird, the nominalist philosopher imitates the ring of Goethe's lines, saying:

"Das Unvergängliche
Ist nur dein Gleichniss.
Gott der Verfängliche
Ist Dichter-Erschleichniss.
Weltspiel, das herrische,
Mischt Sein und Schein:—
Das Ewig-Närrische
Mischt uns—hinein."

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[1] *La Gaya Scienza*, German edition, p. 154; and *passim* in *Menschliches*, etc.

Nietzsche does not believe in truth: "There is probability, but no truth," says he in *Der Wanderer und sein Schatten*, p. 190; and he adds concerning the measure of the value of truth (*ibid.*, Aphorism 4):

"The trouble of ascending mountains is no measure of their height, and should it be different in Science?"

It is true that such words as *long* and *short* are relative, because dependent on subjective needs and valuations. But must we for that reason give up all hope of describing facts in objective terms? Are not metres and foot-measures definite magnitudes, whether or not they be *long* for one purpose and *short* for another? Relativity itself admits of a description in objective terms; and if a statement of facts in objective terms were impossible, the ideals of exact science (as all ideals) would be a dream.

That Nietzsche prefers the abrupt style of aphorisms to dispassionate inquisitions is a symptom that betrays the nature of his philosophy.

While Nietzsche's philosophy is in itself inconsistent and illogical, it is yet born of the logic of facts; it is the consistent result and legitimate conclusion of principles which have been uttered centuries ago and have slowly matured in the historical development of human thought.

The old nominalistic school is the father of Nietzsche's philosophy. A consistent nominalist will be driven from one conclusion to another until he reaches the stage of Nietzsche which is philosophical anarchism and extreme individualism.

The nominalist denies the reality of reason; he regards the existence of universals as a fiction, and looks upon the world as a heap of particulars. He loses sight of the unity of the world and forgets that form is a true feature of things. It is form and the sameness of the laws of form which makes universality of reason possible.

Nominalism rose in opposition to the mediæval realism of the schoolmen who looked upon universals as real and concrete things, representing them as individual beings that existed *ante res*, *in rebus*, and *post res*, i. e., in the particulars, before them and after them.

The realists were wrong in so far as they conceived universals as substances or distinct essences, supposed to be of a more spiritual nature than material things, but after all concrete existences they were said to have been created by God and served him as models for the creation of things, of which they were deemed to be the prototypes and conditions. The nominalists, on the other hand, went too far also in denying the reality of universals and declaring that universals were mere names (*nomina* and *flatus vocis*), i. e., words invented for the sake of conveniently thinking things and nothing else.

At the bottom of the controversy lies the problem as to the nature of things. The question arises, What are things in themselves? Do things, or do they not, possess an independence of their own? Kant's reply is, that things in themselves cannot be known; but our reply is, that the nature of a thing consists in its form; a thing is such as it is because it has a definite form. Therefore "things in themselves" do not exist; but there are "forms in themselves."

Form is not a non-entity but the most important feature of reality, and the pure laws of form are the determinative factors of the world. The sciences of the laws of pure form, logic, arithmetic, algebra, geometry, etc., are therefore the key to a comprehension of the world, and morality is the realisation of ideals, i. e., of the conceptions of pure forms, which are higher, nobler, and better than those which have been actualised.

From our standpoint, evolution is a process in which the eternal laws of being manifest themselves in a series of regular transformations, reaching a point at which sentiency appears. And then evolution takes the shape of progress, that is to say, sentient beings develop mind; sentiments become sensations, i. e., representative images; and words denote the universals. Then reason originates as a reflex of the eternal laws of pure form. Human reason is deepened in a scientific world-conception, and becoming aware of the moral aspect of universality it broadens out into comprehensive sympathy with all forms of existence that like ourselves aspire after a fuller comprehension of existence.

Thus the personality of man is the reflex of that system of eternalities which sways the universe, and humanity is thus found to be a revelation of the core of the cosmos, an incarnation of God-hood. This revelation, however, is not closed. The appearance of the religions of good-will and mutual sympathy is the beginning merely of a new era, and we may expect that the future of mankind will surpass the present, as much as the present surpasses savagery. That is the higher humanity, the over-man, whom we expect.

Nietzsche's philosophy of "immorality" appears on the horizon of human thought as a unique conception which seems to be ushered into this world without any preparation and without any precedence. It sets itself up against tradition. Schopenhauer, Nietzsche's immediate predecessor, regarded history as the desolate dream of mankind, and Nietzsche exhibits a remorseless contempt for everything that comes to us as a product of history. Nietzsche scorns not only law and order, Church and State, but also reason, argument, and rule; he scorns consistency and logic which are regarded as toys for weaklings or as the tools of the crafty.

Nietzsche is a nominalist with a vengeance. His philosophy is particularism carried to extremes. There is no unity of existence to him. The god-idea is dead, not only the old metaphysical notion of a God-individual, but also God in the sense of the ultimate ground of being, the supreme norm of the cosmos. His world is split up into particular selves. He does not ask how they originated; he only knows that they are here. Above all, he knows that his own self is here, and there is no bond of sympathy between his self and other selves. Democracy is an abomination to him, and he despises the gospel of love as it is preached by both Christ and Buddha. This is the key to his anti-moralism and to the doctrine of the autonomy of selfhood.

Nietzsche's philosophy might be called philosophical nihilism, if he did not object to the word. He calls it positivism, but it is particularism, or rather an aristocratic individualism which plays in the domain of thought the same rôle that political nihilism plays in Russia. It is the philosophy of protest, and Nietzsche is conscious

of being a Slav in thought and aspiration. Nor does he forget that his ancestors belonged to the nobility. He claims to have been descended from a Polish nobleman by the name of Niëtzki, a Protestant who came to Germany in the eighteenth century as a religious refugee.[1]

He who has faith in truth accepts it as authority; he who accepts truth as authority recognises duty; he who recognises duty beholds a goal of life, he has found a purpose for which life appears worth living; he reaches out beyond the bounds of his narrow individuality into the limitless cosmos. He transcends himself, he grows in truth, he increases in power, he widens in his sympathies.

But, he who rejects truth cuts himself loose from the fountainhead of the waters of life. He may deify selfhood, but his self will die of its own self-apotheosis. His divinity is not a true God-incarnation, it is mere assumption and self-exaltation of a pretender.

Nietzsche's philosophy is more consistent than it appears on its face. Being the negation of the right of consistency, its lack of consistency is its most characteristic feature. If the intellect is truly, as Schopenhauer suggests, the servant of the will, then there is no authority in reason, and arguments have no strength. All quarrels are simply questions of power. Then, there is Might, but not Right; Right is simply the *bon plaisir* of Might. Then there is no good nor evil; good is that which I will, bad is that which threatens to thwart my will. Good and evil are distinctions invented for the enslavement of the masses, but the free man, the genius, the aristocrat, who craftily tramples the masses under foot, knows no difference. He is beyond good and evil.

This, indeed, is the consequence which Nietzsche boldly draws. It is a consistent anarchism, a courageous immoralism, and a proud aristocratism, the ruthless shout of triumph of the victor who hails the doctrine of the survival of the strongest and craftiest as a "joyful science."

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[1] Nietzsche's love of Slavism manifested itself in his childhood, for when the news of the fall of Sebastopol became known, Nietzsche, at that time a mere boy was so dejected that he could not eat and gave expression to his chagrin in mournful strains of verse.

Nietzsche would not refute the arguments of those who differ from him; for refutation of other views does not befit a positive mind who posits his own truth. "What have I to do with refutations," exclaims Nietzsche in the Preface to his *Genealogy of Morals*. The self is lord. There is no law for the lord, and so he denounces the ethics of Christianity as slave-morality, and preaches the lord-morality of the strong which is self-assertion.

Morality itself is denounced by Nietzsche as immoral. Morality is the result of evolution, and man's moral ideals are products of conditions climatic, social, economical, national, religious, and what not. Why should we submit to the tyranny of a rule which after all proves to be a relic of barbarism? Nietzsche rejects morality as incompatible with the sovereignty of selfhood, and, pronouncing our former judgment a superstition, he proposes "a transvaluation of all values." The self must be established as supreme ruler, and therefore all rules, maxims, principles, must go, for the very convictions of a man are mere chains that fetter the freedom of his soul.

A PHILOSOPHY OF ORIGINALITY.

Nietzsche accepts the truth of evolution, but he does so for the purpose of protesting against that which exists, as having no right of existence, being the mere incidental product of a development.[1] He believes in evolution and in the higher condition of future progress, but instead of working for a development of the better from the best of the present, which is the method of nature, he shows his contempt for the human and all-too-human, he prophesies a deluge and hopes that from its floods the over-man will emerge whose seal of superiority will be the strength of the conqueror that enables him to survive in the struggle for existence.

Nietzsche has looked deeply into the apparent chaos of life

[1] One would expect that Nietzsche, being a most one-sided Darwinist who believes in the struggle for life, red in tooth and claw, would look up to Darwin as his master. But Nietzsche recognises no master, and he emphasises this by speaking in his poetry of Darwin as "this English joker," whose "mediocre reasons are accepted for philosophy." See Nietzsche's poems in the appendix to *A Genealogy of Morals*, Eng. ed., p. 248.

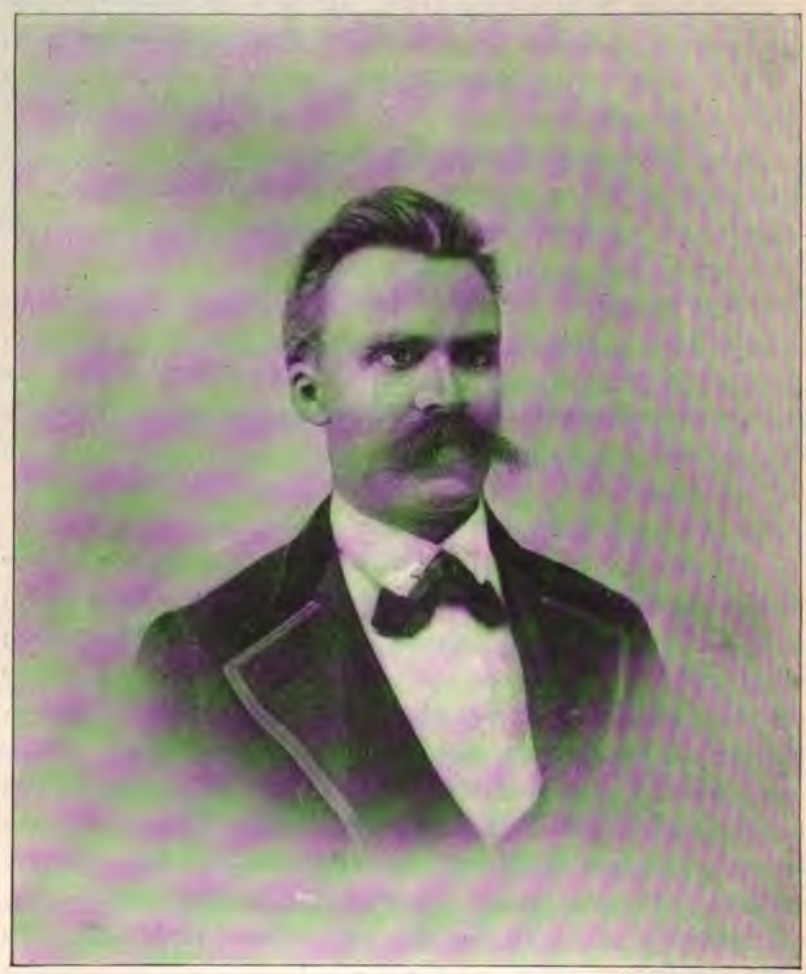
that according to Darwin is a ruthless struggle for survival. He avoids the mistake of those sentimentalists who believe that goody-goodyness can rule the world, who underrate the worth of courage at the expense of humility, and who would venture to establish peace on earth by grounding arms. He sees the differences that exist between all things, the antagonism that obtains everywhere, and preferring to play the part of the hammer, he showers expressions of contempt upon the anvil.

And Nietzsche's self-assertion is immediate and direct. He does not pause to consider what his self is or how it originated. He takes it as it is and opposes it to the authority of other powers, the State, the Church, and the traditions of the past. An investigation of the nature of the self might have dispelled the illusion of his self-glorification, but he never thinks of analysing its constitution. Bluntly and without any reflexion or deliberation he claims the right of the sovereignty of self. He seems to forget that there are different selves, and that what we need most is a standard by which we can gauge their respective worth, and not an assertion of the rights of the self in general.

We do not intend to quarrel with Nietzsche's radicalism. Nor do we underrate the significance of the self. We, too, believe that every self has the liberty to choose its own position and may claim as many rights as it pleases. If it cannot maintain them it will be crushed; otherwise it may conquer its rivals and suppress counter-claims; but therefore the wise man looks before he leaps. Reckless self-assertion is the method of brute creation. Neither the lion nor the lamb meditate on their fate; they simply follow their instincts. They are carnivorous or herbivorous by nature through the karma of their ancestors. Man's karma, however, leads higher. Man can meditate on his own fate, and he can discriminate. His self is a personality, i. e., a self-controlled commonwealth of motor ideas. Man does not blindly follow his impulses but establishes rules of action. He thus can abbreviate the struggle and avoid unnecessary friction; he can rise from brute violence to a self-contained and well-disciplined strength. Self-control (i. e., ethical guidance) is the characteristic feature of the true "over-man"; but

Nietzsche knows nothing of self-control; he would allow the self blindly to assert itself after the fashion of animal instincts.

Nietzsche is the philosopher of instinct. He spurns all logical order, even truth itself. He has a contempt for every one who



IN THE PRIME OF LIFE.

learns from others, for he regards them as slaves to other people's thought. He says in his motto to the second edition of his *Gay Science*:

"Ich wohne in meinem eignen Haus,
Hab' niemandem nie nichts nachgemacht

Und—lachte noch jeden Meister aus,
Der nicht sich selber ausgelacht."[1]

We wonder that Nietzsche did not think of Goethe's little rhyme, which seems to suit his case exactly:

"A fellow says: 'I own no school or college;
No master lives whom I acknowledge;
And pray don't entertain the thought
That from the dead I e'er learnt aught.'

This, if I rightly understand,
Means: 'I'm a fool by own command.'"

Nietzsche observes that the thoughts of most philosophers are secretly guided by instincts. He feels that all thought is at bottom a "will for power," and the will for truth has no right to exist except it serve the will for power. He reproaches philosophers for glorifying truth.

Fichte in his *Duties of the Scholar* says:

"My life and my fate are nothing; but the results of my life are of great importance. I am a priest of Truth; I am in the service of Truth; I feel under obligation to do, to risk, and to suffer anything for truth."

Nietzsche declares that this is shallow. Will for truth, he says, should be called "will to make being thinkable." Here, it seems to us, Nietzsche simply replaces the word "truth" by one of its functions. Truth is a systematic representation of reality, a comprehensive description of facts; the result being that "existence is made thinkable."

Nietzsche is in a certain sense right when he says that truth in itself is nothing; for every representation of reality must serve a purpose, otherwise it is superfluous and useless. And the purpose of truth is the furtherance of life. Nietzsche instinctively hits the right thing in saying that at the bottom of philosophy there is the will for power. In spite of our school-philosophers' vain declamations of "science for its own sake," genuine philosophy will never be anything else than a method for the acquisition of power. But this method is truth. Nietzsche errs when he declares that "the

[1] "I live in my own house, have never imitated anybody, and have always laughed at every master who has not laughed at himself."

head is merely the intestine of the heart." The head endeavors to find out the truth, and the truth is not purely subjective. It is true that truth is no good to a man unless he makes it his own ; he must possess it ; it must be part of himself, but he cannot create it. Truth cannot be made ; it must be discovered. Since the scholar's specialised business is the elucidation of the method of discovering the truth, not its purpose, not its application in practical life, Fichte's ideal of the aim of scholarship remains justified.

Omit the ideal of truth in a philosophy, and it becomes an *ignis fatuus*, a will-o'-the-wisp, that will lead people astray. Truth makes existence thinkable, but thinkableness alone is not as yet a test of truth. The ultimate test of truth is its practical application. There is something wrong with a theory that does not work, and thus the self has a master, which is reality, the world in which it lives, with its laws and actualities. The subjective self must measure its worth by the objective standard of truth,—to be obtained through exact inquiry and scientific investigation.

The will for power, in order to succeed, must be clarified by a methodical comprehension of facts and conditions. The contradictory impulses in our own self must be systematised so that they would not collide and mutually annihilate themselves ; and the comprehension of this orderly disposition is called reason.

Nietzsche is on the right track when he ridicules such ideals as "virtue for the sake of virtue," and even "truth for the sake of truth." Virtue and truth are for the sake of life. They have not their purpose in themselves, but their nature consists in serving the expanse and further growth of the human soul. This is a truth which we have always insisted upon and which becomes apparent when those people who speak of virtue for its own sake try to define virtue, or determine the ultimate standard of right and wrong, of goodness and badness. We say, that that which enhances soul-growth, thus producing higher life and begetting a superior humanity, is good ; while that which cripples or retards those aspirations is bad. Further, truth is not holy in itself. It becomes holy in the measure that it serves man's holiest aspirations. We sometimes meet among scientists, and especially among philologists, men who

with the ideal of "truth for the sake of truth" pursue some very trivial investigations, such, for example, as the use of the accusative after certain prepositions in Greek, or how often Homer is guilty of a hiatus. They resemble Wagner, whom Faust characterises as:

> ". . . a fool whose choice is
> To stick in shallow trash for ever more,
> Who digs with eager hand for buried ore,
> And when he finds an earthworm he rejoices."

Thus there are many trivial truths which are indifferent and the investigation of which is of no account. For instance, whether the correct pronunciation of the Greek letter η was *ee* or *ay* need not concern us much, and the philologist who devotes to its settlement all his life and his best strength is rather to be pitied than admired. Various truths are very different in value, for life and truth become holy according to their importance. All this granted, we need not, with Nietzsche, discard truth, reason, virtue, and all moral aspirations.

Nietzsche apparently is under the illusion that reason, systematic thought, the moral discipline, self-control, are external powers, and in his love of liberty he objects to their authority. Did he ever consider that thought is not an external agent, but a clarification of man's instincts, and that discipline is, or at least in its purpose and final aim ought to be, self-regulation, so that our contradictory thoughts would not wage an internecine war? Thus, Nietzsche, the instinct-philosopher, appears as an ingenious boy whose very immaturity is regarded by himself as the highest blossom of his existence. Like an intoxicated youth, he revels in his irresponsibility and laughs at the man who has learned to take life seriously. Because the love of truth originates from instincts, Nietzsche treats it as a mere instinct, and nothing else. He forgets that in the evolution of man's soul all instincts develop into something higher than instinct, and the love of truth develops into systematic science.

Nietzsche never investigated what his self consists of. He never analysed his individuality. Otherwise he would have learned

that he has received the most valuable part of his being from others, and that that bundle of instincts which he calls his sovereign self is nothing but the inherited heirloom of the ages that have preceded him. In spite of his repudiation of owing anything to others, he is but the continuation of others. But he boldly carries his individualism, if not to its logical conclusions, yet to its moral applications. When speaking of the Order of Assassins of the times of the Crusades, he says with enthusiasm: "The highest secrecy of their leaders was, 'Nothing is true, everything is allowed!'" And Nietzsche adds: "Indeed, that was liberty of spirit, that dismissed even the belief in truth." The philosopher of instinct regards even the adhesion to truth as slavery and the proclamation of truth as dogmatism.

NIETZSCHE'S ZARATHUSTRA.

To those who have not the time to wade through the twelve volumes of Nietzsche's works and yet wish to become acquainted with him as he is at his best, we recommend a perusal of his book *Thus Spake Zarathustra*, which is original and interesting, full of striking passages, sometimes flashes of deep truths, then again sterile and unprofitable, or even tedious, and sometimes absurd; but which at any rate presents the embodiment of Nietzsche's grandest thoughts in their most attractive and characteristic form. We need scarcely warn the reader that Zarathustra is only another name for Friedrich Nietzsche and has nothing to do with the historical person of that name, the great Iranian prophet, the founder of Mazdaism.

The quintessence of Nietzsche's philosophy is the "over-man." What is the over-man?

The word *Uebermensch* comes from a good mint; it is of Goethe's coinage and served to characterise Faust, the titanic man of high aims and undaunted courage,—the man who would not budge in the presence of hell and pursued his aspirations in spite of the forbidding countenance of God and the ugly grin of Satan. Alexander Tille, the English translator of Nietzsche's *Thus Spake Zarathustra*, translates the word *Uebermensch* by "beyond-man,"

but beyond means *jenseits*; and Nietzsche wrote *über*, i. e., superior to, over, or higher than, and the literal translation "over-man" appears to be the best. Emerson in a similar vein, when attempting to characterise that which is higher than the soul, invented the term "oversoul," and I can see no objection to the word "over-man."

The over-man is the higher man, the superhuman man of the future, a higher, nobler, more powerful, a better being than the present man! What a splendid idea! Since evolution has been accepted as a truth, we may fairly trust that we all, at least all evolutionists, believe in the over-man. All our reformers believe in the possibility of realising a higher mankind. We Americans especially have faith in the coming of the kingdom of the over-man, and our endeavor is concentrated in hastening his arrival. The question is only, What is the over-man and how can we make this ideal of a higher development actual?

Happy Nietzsche! You need not trouble yourself about consistency. You reject all ideals as superstitions, and then introduce an ideal of your own. "There you see," says an admirer of Nietzsche, "what a splendid principle it is not to own any allegiance to logic, or rule, or consistency. The best thought of Nietzsche's would never have been uttered if he had remained faithful to his own principles."

However ingenious the idea of an over-man may be, Nietzsche carries his propositions to such extremes that in spite of many flashes of truth they become in the end ridiculous and even absurd.

Nietzsche's ideal is good, but he utterly fails to comprehend its nature and also the mode in which alone the over-man can be realised.

Nietzsche's Zarathustra is a hermit philosopher who, weary of his wisdom, leaves his cave and comes to mingle with men, to teach them the over-man. He meets a saint who loves God, and Zarathustra leaving him says: "Is it possible? This old saint in his forest has not yet heard that God is dead!"

In a town Zarathustra preaches to a crowd in the market:

"I teach you the over-man. Man is a something that shall be surpassed. What have ye done to surpass him?

"All beings hitherto have created something beyond themselves: and are ye going to be the ebb of this great tide and rather revert to the animal than surpass man?

"What with man is the ape? A joke or a sore shame. Man shall be the same for the over-man, a joke or a sore shame.

"Behold, I teach you the over-man!

"The over-man is the significance of the earth. Your will shall say: the over-man shall be the significance of the earth.

"I conjure you, my brethren, remain faithful to the earth and do not believe those who speak unto you of superterrestrial hopes! Poisoners they are whether they know it or not.

"Verily, a muddy stream is man. One must be the ocean to be able to receive a muddy stream without becoming unclean.

"Behold, I teach you the over-man: he is that ocean, in him your great contempt can sink.

"What is the greatest thing ye can experience? That is the hour of great contempt. The hour in which not only your happiness, but your reason and virtue as well, turn loathsome.

"I love him who is of a free spirit and of a free heart: thus his head is merely the intestine of his heart, but his heart driveth him to destruction.

"I love all those who are like heavy drops falling one by one from the dark cloud lowering over men: they announce the coming of the lightning and perish in the announcing.

"Behold, I am an announcer of the lightning and a heavy drop from the clouds: that lightning's name is the over-man."

Zarathustra comes as an enemy of the good and the just. He says:

"Lo, the good and just! Whom do they hate most? Him who breaketh to pieces their tables of values,—the law-breaker, the criminal:—but he is the creator.

"The destroyer of moral I am called by the good and just: my tale is immoral."

Zarathustra's philosophy is a combination of the eagle's pride and the serpent's wisdom, which Nietzsche describes thus:

"Lo! an eagle swept through the air in wide circles, a serpent hanging from it not like a prey, but like a friend: coiling round its neck.

"'They are mine animals,' said Zarathustra, and rejoiced heartily.

"The proudest animal under the sun, and the wisest animal under the sun have set out to reconnoitre.

"They wished to learn whether Zarathustra still liveth. Verily, do I still live.

"More dangerous than among animals I found it among men. Dangerous ways are taken by Zarathustra. Let mine animals lead me!"

Here is a sentence worth quoting:

"Of all that is written I love only that which the writer wrote with his blood. Write with blood, and thou wilt learn that blood is spirit."

In another chapter on the back-worlds-men Nietzsche writes:

"Once Zarathustra threw his spell beyond man, like all back-worlds-men Then the world seemed to me the work of a suffering and tortured God.

"Alas! brethren, that God whom I created was man's work and man's madness, like all Gods!

"Man he was, and but a poor piece of man and the I. From mine own ashes and flame it came unto me, that ghost, yea verily! It did not come unto me from beyond!

"What happened, brethren? I overcame myself, the sufferer, and carrying mine own ashes unto the mountains invented for myself a brighter flame. And lo! the ghost departed from me!

"Now to me, the convalescent, it would be suffering and pain to believe in such ghosts: suffering it were now for me and humiliation. Thus I speak unto the back-worlds-men."

Nietzsche's self is not ideal but material; it is not thought, not even the will, but the body. The following passage sounds like Vedantism as interpreted by a materialist:

"He who is awake and knoweth saith: body I am throughout, and nothing besides; and soul is merely a word for a something in body.

"Body is one great reason, a plurality with one sense, a war and a peace, a flock and a herdsman.

"Also thy little reason, my brother, which thou callest 'spirit'—it is a tool of thy body, a little tool and toy of thy great reason.

"'I' thou sayest and art proud of that word. But the greater thing is—which thou wilt not believe—thy body and its great reason. It doth not say 'I,' but it is the acting 'I.'

"The self ever listeneth and seeketh: it compareth, subdueth, conquereth, destroyeth. It ruleth and is the ruler of the 'I' as well.

"Behind thy thoughts and feelings, my brother, standeth a mighty lord, an unknown wise man—whose name is self. In thy body he dwelleth, thy body he is.

"There is more reason in thy body than in thy best wisdom. And who can know why thy body needeth thy best wisdom?

"Thy self laugheth at thine I and its prancings: What are these boundings

and flights of thought? it saith unto itself. A round-about way to my purpose. I am the leading-string of the I and the suggester of its concepts.

"The creative self created for itself valuing and despising, it created for itself lust and woe. The creative body created for itself the spirit to be the hand of its will."

One of the best passages in Zarathustra's sermons is Nietzsche's command to love the over-man, the man of the distant future:

"I tell you, your love of your neighbor is your bad love of yourselves.

"Ye flee from yourselves unto your neighbor and would fain make a virtue thereof; but I see through your 'unselfishness.'

"The thou is older than the I; the thou hath been proclaimed holy, but the I not yet; man thus thrusteth himself upon his neighbor.

"Do I counsel you to love your neighbor? I rather counsel you to flee from your neighbor and to love the most remote.

"Love unto the most remote future man is higher than love unto your neighbor. And I consider love unto things and ghosts to be higher than love unto men,

"This ghost which marcheth before thee, my brother, is more beautiful than thou art. Why dost thou not give him thy flesh and thy bones? Thou art afraid and fleest unto thy neighbor.

"Unable to endure yourselves and not loving yourselves enough: you seek to wheedle your neighbor into loving you and thus to gild you with his error.

"My brethren, I counsel you not to love your neighbor, I counsel you to love those who are the most remote."

In perfect agreement with the ideal of the over-man is Nietzsche's view of marriage:

"Thou shalt build beyond thyself. But first thou must be built thyself square in body and soul.

"Thou shalt not only propagate thyself but propagate thyself upwards! Therefore the garden of marriage may help thee!

"Thou shalt create a higher body, a prime motor, a wheel of self-rolling,—thou shalt create a creator.

"Marriage: thus I call the will of two to create that one which is more than they who created it. I call marriage reverence unto each other as unto those who will such a will.

"Let this be the significance and the truth of thy marriage. But that which the much-too-many call marriage, those superfluous—alas, what call I that?

"Alas! that soul's poverty of two! Alas! that soul's dirt of two! Alas! that miserable ease of two!

"Marriage they call that; and they say marriage is made in heaven.

"Well, I like it not, that heaven of the superfluous!"

Nietzsche takes a Schopenhauerian view of womankind, excepting from the common condemnation his sister alone, to whom he once said, "You are not a woman, you are a friend." He says of woman:

"Too long a slave and a tyrant have been hidden in woman. Therefore woman is not yet capable of friendship: she knoweth love only."

Nietzsche is not aware that his self changes and that it grows by the acquisition of truth. He treats the self as remaining the same, and truth as that which our will has made conceivable. Truth to him is a mere creature of the self. Here is Zarathustra's condemnation of man's search for truth:

"'Will unto truth' ye call, ye wisest men, what inspireth you and maketh you ardent?

"'Will unto the conceivableness of all that is,'—thus I call your will!

"All that is ye are going to *make* conceivable. For with good mistrust ye doubt whether it is conceivable.

"But it hath to submit itself and bend before yourselves! Thus your will willeth. Smooth it shall become and subject unto spirit as its mirror and reflected image.

"That is your entire will, ye wisest men, as a will unto power; even when ye speak of good and evil and of valuations.

"Ye will create the world before which to kneel down. Thus it is your last hope and drunkenness."

Recognition of truth is regarded as submission:

"To be true,—few are able to be so! And he who is able doth not want to be so. But least of all the good are able.

"Oh, these good! *Good men never speak the truth.* To be good in that way is a sickness for the mind.

"They yield, these good, they submit themselves; their heart saith what is said unto it, their foundation obeyeth. But whoever obeyeth doth not hear *himself*!"

Nietzsche despises science. He must have had sorry experiences with scientists who offered him the dry bones of scholarship as scientific truth.

"When I lay sleeping, a sheep ate at the ivy-wreath of my head,—ate and said eating: 'Zarathustra is no longer a scholar.'

"Said it and went off clumsily and proudly. So a child told me.

"This is the truth: I have departed from the house of scholars, and the door I have shut violently behind me.

"Too long sat my soul hungry at their table. Not, as they, am I trained for perceiving as for cracking nuts.

"Freedom I love, and a breeze over a fresh soil. And I would rather sleep on ox-skins than on their honors and respectabilities.

"I am too hot and am burnt with mine own thoughts, so as often to take my breath away. Then I must go into the open air and away from all dusty rooms.

"Like millworks they work, and like corn-crushers. Let folk only throw their grain into them! They know only too well how to grind corn and make white dust out of it.

"They look well at each other's fingers and trust each other not over-much. Ingenious in little stratagems, they wait for those whose knowledge walketh on lame feet; like spiders they wait.

"They also know how to play with false dice; and I found them play so eagerly that they perspired from it.

"We are strangers unto each other, and their virtues are still more contrary unto my taste than their falsehoods and false dice."

Even if all scientists were puny sciolists, the ideal of science would remain, and if all the professed seekers for truth were faithless to and unworthy of their high calling, truth itself would not be abolished.

So far as we can see, Nietzsche never became acquainted with any one of the exact sciences. He was a philologist who felt greatly dissatisfied with the loose methods of his colleagues, but he has not done much in his own specialty to attain to a greater exactness of results. His essays on Homer, on the Greek tragedy, and similar subjects, have apparently not received much recognition among philologists and historians.

Having gathered a number of followers in his cave, one of them, called the conscientious man, said to the others:

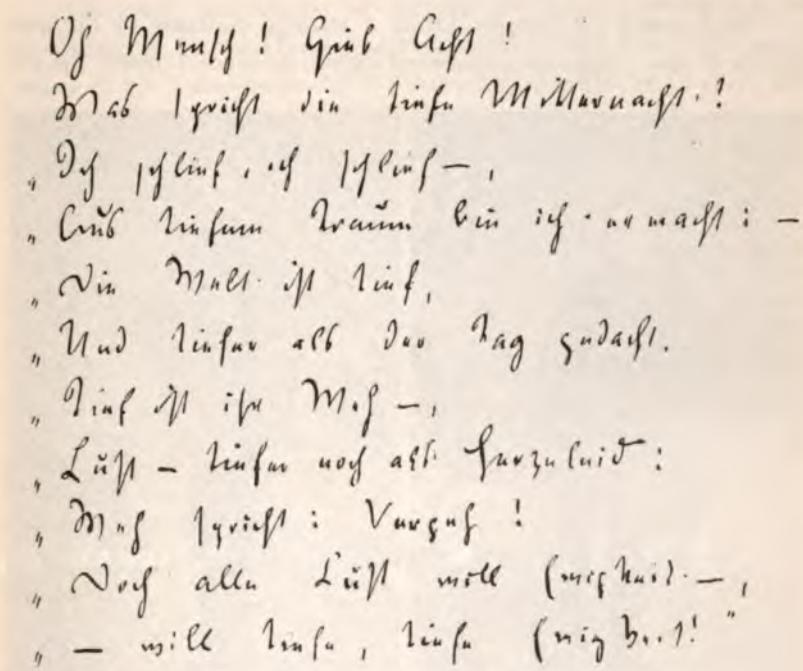
"We seek different things, even up here, ye and I. For I seek more security. Therefore have I come unto Zarathustra. For he is the firmest tower and will—

"Fear—that is man's hereditary and fundamental feeling. By fear everything is explained, original sin and original virtue. Out of fear also hath grown *my* virtue, which is called Science.

"Such long, old fears, at last become refined, spiritual, intellectual, to-day, methinketh, it is called *Science*."

This conception of science is refuted by Nietzsche in this fashion:

"Thus spake the conscientious one. But Zarathustra who had just returned into his cave and had heard the last speech and guessed its sense, threw a handful of roses at the conscientious one, laughing at his 'truths.' 'What?' he called 'What did I hear just now? Verily, methinketh, thou art a fool, or I am one myself. And thy "truth" I turn upside down with one blow, and that quickly.



NIETZSCHE'S HANDWRITING.
A poem from *Thus Spake Zarathustra.*

"'For fear is our exception. But courage and adventure, and the joy of what is uncertain, what hath never been dared—courage, methinketh, is the whole prehistoric development of man.

"'From the wildest, most courageous beasts he hath, by his envy and his preying, won all their virtues. Only thus hath he become a man.

"'*This* courage, at last become refined, spiritual, intellectual, this human courage with an eagle's wings and a serpent's wisdom—it, methinketh, is called today—'

"'*Zarathustra!*' cried all who sat together there, as from one mouth, making a great laughter withal."

In spite of identifying his self with the body, who is mortal, Nietzsche longs for the immortal. He says:

"Oh! how could I fail to be eager for eternity, and for the marriage-ring of rings, the ring of recurrence?

"Never yet have I found the woman by whom I should have liked to have children, unless it be this woman I love. For I love thee, O Eternity!"

A PROTEST AGAINST HIMSELF.

Nietzsche's philosophy forms a strange contrast to his own habits of life. Himself a model of virtue, he made himself the ad-

AS A PUPIL OF SCHULPFORTA. 1861.

AS A VOLUNTEER IN THE GERMAN ARTILLERY. 1868.

vocate of vice, and gloried in it. He encouraged the robber[1] to rob, but he himself was honesty incarnate; he incited the people to rebel against authority of all kinds, but he himself was a "model child" in the nursery, a "model scholar" in school, and a "model soldier" while serving in the German army. His teachers as well

[1] *E. g.*: "Bitte nie! Lass dies Gewimmer!
Nimm, ich bitte dich, nimm immer!"

as the officers of his regiment find not words enough *to praise Nietzsche's obedience.*[1]

Nietzsche disclaims having learnt anything in any school, but there was never a more grateful German disciple. He composed fervid poems on his school—the well-known institution *Schulpforta*, which on account of its severe discipline he praises, not in irony but seriously, as the "narrow gate."[2]

Nietzsche denounces the German character, German institutions, and the German language, his mother-tongue; he is extremely unfair in his denunciations;[3] but he not only writes in German and makes the most involved constructions, but when the war broke out he asks his adopted country Switzerland, in which he had ac-

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[1] Compare *Das Leben Friedrich Nietzsche's* by his sister, Elisabeth Förster-Nietzsche. Nietzsche's professors declare that he distinguished himself "*durch pünktlichen Gehorsam*" (p. 3); his sister tells us that she and her brother were "*ungeheuer artig, wahre Musterkinder*" (p. 36). He makes a good soldier, and, in spite of his denunciations of posing, displays theatrical vanity in having himself photographed with drawn sword (the scabbard is missing). His martial mustache almost anticipates the tonsorial art of the imperial barber of the present Kaiser; and yet his spectacled eyes and good-natured features betray the peacefulness of his intentions. He plays the soldier only, and would have found difficulty in killing even a fly.

[2] *Leben*, pp. 90–97.

[3] Nietzsche enjoys it that *Deutsch* (see Ulfila's Bible translation) originally means "pagans or heathen," and hopes that the dear German people will earn the honor of being called pagans. (*La Gaya Scienza*, p. 176.) A reaction against his patriotism sets in immediately after the war, when he became acquainted with the brutality of some vulgar specimens of the victorious nation,—most of them non-combatants. (See, *e. g.*, *Leben*, II., 1, pp. 108–111.) "Nach dem Kriege missfiel mir der Luxus, die Franzosenverachtung," etc., p. 108. "Ich halte das jetzige Preussen für eine der Cultur höchst gefährliche Macht." Nietzsche ridicules German as barbarous in sound (*La Gaya Scienza*, pp. 138–140), "wälderhaft, heiser, wie aus räucherigen Stuben und unhöflichen Gegenden." Unique is the origin of the standard style of modern high German from the bureacratic slang, "kanzleimässig schreiben, das war etwas Vornehmes" (*La Gaya Scienza*, p. 138), and at present the German changes into an "Offizierdeutsch" (*ibid.*, p. 139). Nietzsche suspects "the German depth, "die deutsche Tiefe," to be a mere mental dyspesia (see "Jenseits von Gut und Böse," p. 211), saying, "Der Deutsche verdaut seine Ereignisse schlecht, er wird nie damit fertig; die deutsche Tiefe ist oft nur eine schwere, zögernde Verdauung." Nevertheless, he holds that the old-fashioned German depth is better than modern Prussian "Schneidigkeit und Berliner Witz und Sand." He prefers the company of the Swiss to that of his countrymen. (See also "Was den Deutschen abgeht," Vol. 8, p. 108.)

quired citizenship after accepting a position as professor of classical languages at the University of Basel, for leave of absence to join the German army. He might have had a chance in the Franco-Prussian war to live up to his theories of struggle, but unfortunately the Swiss authorities did not allow him to join the army, and granted leave of absence only on the condition that he would serve as a nurse. Such is the irony of fate. While Nietzsche stood up for a ruthless assertion of strength and for a suppression of sympathy which he denounced as a relic of the ethics of a negation of life, his own tender soul was so over-sensitive that his sister feels justified in tracing his disease back to the terrible impressions he received during the war.

Nietzsche speaks of the king as "the dear father of the country."[1] If there was a flaw in Nietzsche's moral character, it was goody-goodyness; and his philosophy is a protest against the principles of his own nature. While boldly calling himself "the first immoralist," justifying even licence itself and defending the coarsest lust,[2] his own life was as pure as that of a virgin, and he shrunk back in disgust from moral filth whenever he met with it in practical life.

Nietzsche denounced pessimism, and yet his philosophy was, as he himself confesses, the last consequence of pessimism. Hegel declared (says Nietzsche in *Morgenröthe*, p. 8), "Contradiction moves the world, all things are self-contradictory;" "we (adds Nietzsche) carry Pessimism even into logic." He proposes to vivisect morality; "but (adds he) you cannot vivisect a thing without killing it." Thus his "immoralism" is simply an expression of his earnestness to investigate the moral problem, and he expresses the result in this terse sentence: "Moral ist Nothlüge." (*Menschliches*, p. 63.)

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[1] "Unser lieber König," "der Landesvater," etc. See *Leben*, I., p. 24, and II., 1, p. 248, "Unser lieber alter Kaiser Wilhelm" and "wir Preussen waren wirklich stolz." These expressions occur in Nietzsche's description of the Emperor's appearance at Bayreuth.

[2] *E. g.*, "Auch der schädlichste Mensch ist vielleicht immer noch der allernützlichste in Hinsicht auf Erhaltung der Art," etc. *La Gaya Scienza*, p. 3 ff.

He preached struggle and hatred, and yet was so tender-hearted that in an hour of dejection he confessed to his sister with a sigh:

"Ich bin so gar nicht zum Hassen und zum Feind sein gemacht!"

Poor Nietzsche! what a bundle of contradictions! None of these contradictions are inexplicable. All of them are quite natural. They are the inevitable reactions against a prior enthusiasm, and he swings, according to the law of the pendulum, to the opposite extreme of his former position.

How did Nietzsche develop into an Immoralist? Simply by way of reaction against the influence of Schopenhauer in combination with the traditional Christianity. Schopenhauer was the master at whose feet Nietzsche sat; he learned from Schopenhauer boldness of thought and atheism; he accepted for a time his pessimism, but rebelled in his inmost soul against the ethical doctrine of the negation of the will. He thus recognised the reactionary spirit of Schopenhauer, whose system is a Christian metaphysics. Nietzsche denounces the ethics of a negation of the will as a disease, and since nature in the old system is regarded as the source of moral evil the idea dawns on him that he himself, trying to establish a philosophy of nature, is an immoralist. He now questions morality itself from the standpoint of an affirmation of the will, and at last goes so far as to speak of ideals as a symptom of shallowness.[1]

Nietzsche must not be taken too seriously. He was engaged with the deepest problems of life, and published his sentiments as to their solution before he had actually attempted to investigate them. He criticises and attacks like the Irishman who hits a head wherever he sees it. Here are the first three rules of his philosophical warfare:

"First: I attack only those causes which are victorious, sometimes I wait till they are victorious. Secondly: I attack them only when I would find no allies,

[1] See, e. g., *Leben*, I., p. 135, where he speaks of a new "Freigeisterei," denouncing the "libres penseurs" as "unverbesserliche Flachköpfe und Hanswürste," adding, "Sie glauben allesammt noch an's 'Ideal.'"

when I stand isolated, when I compromise myself alone. Thirdly: I have never taken a step in public which did not compromise me. That is my criterion of right action."

THE LATEST PICTURE. After an oil-painting by C. Stoeving.

A man who adopts this strange criterion of right conduct must produce a strange philosophy. His soul is in an uproar against itself. Says Nietzsche in his *Götzendämmerung*, Aphorism 45:

"Almost every genius knows as one phase of his development the 'Catilinary existence,' so called, which is a feeling of hatred, of vengeance, of revolution against everything that is, which no longer needs to become . . . Catilina—the form of Cæsar's pre-existence."

Nietzsche changed his views during his life-time, and the Immoralist Nietzsche originated in contradiction to his habitual moralism. He is a man of extremes. As soon as a new thought dawns on him, it takes possession of his soul to the exclusion of his prior views, and his latter self contradicts his former self.

Nietzsche says:

"The serpent that cannot slough must die. In the same way, the spirits which are prevented from changing their opinions cease to be spirits."

So we must expect that if Nietzsche had been permitted to continue longer in health, he would have cast off the slough of his Immoralism and the negative conceptions of his positivism. His Zarathustra was the last work of his pen, but it is only the most classical expression of the fermentation of his soul, not the final purified result of his philosophy; it is not the solution of the problem that stirred his heart.

While writing his *Unzeitgemässe Betrachtungen*, Nietzsche characterises his method of work thus:

"That I proceed with my outpourings considerably like a dilettante and in an immature manner, I know very well, but I am anxious first of all to get rid of the whole polemico-negative material. I wish undisturbedly to sing off, up and down and truly dastardly, the whole gamut of my hostile feelings, 'that the vaults shall echo back.'[1] Later on, i. e., within five years, I shall discard all polemics and bethink myself of a really 'good work.' But at present my breast is oppressed with disgust and tribulation. I must expectorate, decorously or indecorously, but radically and for good" [*endgültig*].

The very immaturity of Nietzsche's view becomes attractive to immature minds. He wrote while his thoughts were still in a state of fermentation, and he died before the wine of his soul was clarified.

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[1] "Dass das Gewölbe wiederhallt,"—a quotation from Goethe's "Faust."

ANOTHER NIETZSCHE.

The assertion of selfhood and the hankering after originality make Nietzsche the exponent of the absolute uniqueness of everything particular, and he goes to the extreme of denying all kinds of universality—even that of formal laws (the so-called uniformities of nature), reason, and especially its application in the field of practical life, morality. His ideal is "Be thyself! Be unique! Be original!" Properly speaking, we should not use the term ideal when speaking of Nietzsche's maxims of life, for the conception of an ideal is based upon a recognition of some kind of universality, and Nietzsche actually sneers at any one having ideals. The adherents of Nietzsche speak of their master as "*der Einzige*," i. e., "the unique one," and yet (in spite of the truth that every thing particular is in its way unique) the uniformities of nature are so real and unfailing that Nietzsche is simply the representative of a type which according to the laws of history and mental evolution naturally and inevitably appears whenever the philosophy of nominalism reaches its climax. He would therefore not be unique even if he were the only one that aspires after a unique selfhood; but the fact is that there are a number of Nietzsches, he happening to be the best known of his type. Other advocates of selfhood, of course, will be different from Nietzsche in many unimportant details, but they will be alike in all points that are essential and characteristic. One of these Nietzsches is George Moore, a Britain who is scarcely familiar with the writings of his German double, but a few quotations from his book, *Confessions of a Young Man*, will show that he can utter thoughts which might have been written by Friedrich Nietzsche himself. George Moore says:

"I was not dissipated, but I loved the abnormal" (p. 18).

"I was a model young man indeed" (p. 20).

"I boasted of dissipations" (p. 19).

"I say again, let general principles be waived; it will suffice for the interest of these pages if it be understood that brain-instincts have always been, and still are, the initial and the determining powers of my being" (p. 47).

George Moore is, like Nietzsche, one of Schopenhauer's disciples who has become sick of pessimism. He says:

"That odious pessimism! How sick I am of it" (p. 310).

When George Moore speaks of God he thinks of him in the old-fashioned way as a big self, an individual and particular being. Hence he denies him. God is as dead as any pagan deity. George Moore says:

"To talk to us, the legitimate children of the nineteenth century, of logical proofs of the existence of God, strikes us in just the same light as the logical proof of the existence of Jupiter Ammon" (p. 137).

George Moore is coarse in comparison with Nietzsche. Nietzsche is no cynic; he is pure-hearted and noble by nature; Moore is voluptuous and vulgar; but both are avowed immoralists, and if the principle of an unrestrained egotism be right, George Moore is as good as Nietzsche, and any criminal given to the most abominable vices would not be worse than either.

Nietzsche feels the decadence of the age and longs for health; but he attributes the cause of his own decadence to the Christian ideals of virtue, love, and sympathy with others. George Moore cherishes the same views; he says:

"We are now in a period of decadence, growing steadily more and more acute" (p. 239).

"Respectability . . . continues to exercise a meretricious and enervating influence on literature" (p. 240).

"Pity, that most vile of all vile virtues, has never been known to me. The great pagan world I love knew it not" (p. 200).

"The philanthropist is the Nero of modern times" (p. 185).

Both Nietzsche and Moore long for limitless freedom; but Moore seems more consistent, for he lacks the ideal of the overman and extends freedom to the sex relation, saying:

"Marriage—what an abomination! Love—yes, but not marriage . . . freedom limitless" (p. 168–169).

Moore loves art, but his view of art is cynical, and here too he is unlike Nietzsche; he says:

"Art is not nature. Art is nature digested. Art is a sublime excrement" (p. 178).

Both believe in the coming of a great social deluge. George Moore says:

"The French revolution will compare with the revolution that is to come, that must come, that is inevitable, as a puddle on the road-side compares with the sea. Men will hang like pears on every lamp-post, in every great quarter of London, there will be an electric guillotine that will decapitate the rich like hogs in Chicago" (p. 343).

Ideals are regarded as superstitions, and belief in ideas is deemed hypocritical. George Moore says:

"In my heart of hearts I think myself a cut above you, because I do not believe in leaving the world better than I found it; and you, exquisitely hypocritical reader, think that you are a cut above me because you say you would leave the world better than you found it" (p. 354).

The deeds of a man, his thoughts and aspirations, which constitute his spiritual self, count for nothing; the body alone is supposed to be real, and thus after death a pig is deemed more useful than a Socrates. Continues Moore:

"The pig that is being slaughtered as I write this line will leave the world better than it found it, but you will leave only a putrid carcass fit for nothing but the grave" (p. 353).

Wrong is idealised:

"Injustice we worship; all that lifts us out of the miseries of life is the sublime fruit of injustice.

"Man would not be man but for injustice" (p. 203).

"Again I say that all we deem sublime in the world's history are acts of injustice; and it is certain that if mankind does not relinquish at once and for ever, its vain, mad, and frantic dream of justice, the world will lapse into barbarism" (p. 205).

George Moore, giving a moment's thought to the ideal of "a new art, based upon science, in opposition to the art of the old world that was based on imagination, an art that should explain all things and embrace modern life in its entirety, in its endless ramifications, be it, as it were, a new creed in a new civilisation . . . that would continue to a more glorious and legitimate conclusion the work that the prophets have begun;" but he turns his back upon it. It would be after all a product of development; it would

be the tyranny of a past age, and he says, "as well drink the dregs of yesterday's champagne" (p. 128).

NIETZSCHE'S DISCIPLES.

Nietzsche's influence is not limited to the professional circle of philosophers; his philosophy begins to play a part in practical life and has taken hold of a number of souls who protest against the social, the political, the religious, and even the scientific, conditions of our civilisation. Nietzsche is the philosopher of protest, and, strange to say, while he himself is aristocratic in his instincts, he appeals most powerfully to the masses of the people. His views act like dynamite upon restless spirits, and he announces himself as the prophet of a great thunder-storm, an upheaval, the outbreak of a volcano.

Nietzsche may make the evolutionist pause, but he appeals only to the revolutionist. His philosophy is the expression of a would-be Cæsar and will therefore be fascinating to all Catilinas.

Nietzsche's disciples are not among the aristocrats, not among the scholars, not among the men of genius. His followers are among the people who believe in hatred and hail him as a prophet of the great deluge. His greatest admirers are anarchists, sometimes also socialists, and above all those geniuses who have failed to find recognition. Nietzsche's thought will prove veritable dynamite if it should happen to reach the masses of mankind, the disinherited, the uneducated, the proletariat, the Catilinary existences. Nietzsche's philosophy is to those whom he despised most, an intoxicant; they see in him their liberator, and their ear feels tickled by his invectives.

Invectives naturally appeal to those who are as unthinking as the brutes of the field, but feel the sufferings of existence as much as do the beasts of burden. They are impervious to argument, but being full of bitterness and envy they can be led most easily by any kind of denunciations of their betters. Nietzsche hated the masses, the crowd of the common people, the herd. He despised the lowly and had a contempt for the ideals of democracy. Nevertheless, his style of thought is such as to resemble the rant of the leaders of

mobs, and it is quite probable that in the course of time he will become the philosopher of demagogues.

A great number of Nietzsche's disciples share their master's eccentricities and especially his impetuosity. Having a contempt for philosophy as the work of the intellect, they move mainly in the field of political and social self-assertion; they are anarchists who believe that the over-man is coming in labor troubles, strikes, and through a subversion of the authority of government in any form.

The best known German expounders of Nietzsche's philosophy are Max Stirner, Rudolf Steiner, and Alexander Tille.[1] Professor Henri Lichtenberger of the University of Nancy has become his interpreter in France,[2] and Mr. Erwin McCall, the editor of *The Eagle and the Serpent*, in England.

A periodical *Der Eigene*, i. e., "he who is his own," announces itself as "a journal for all and nobody," and "sounds the slogan of the egoists," by calling on them to "preserve their ownhood." *Der Eigene* proposes to "antagonise all ideals of the brotherhood of man in the religious, ethical, altruistic, social, and communistic fields." It decries monopoly in every form, wages war against all democratic programmes, all aspirations of equality, including charity-manias in every form and slumming (*Pöbelbeglückung*); it antagonises bureaucracy and all rules. It does not expect social salvation from the socialistic abolition of private property, but from an unimpeded personal appropriation, the realisation of which appears in a free market and the unconditional *laissez faire, laissez passer.*

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[1] A. Tille, *Von Darwin bis Nietzsche.* R. Steiner, *Wahrheit und Wissenschaft*; *Die Philosophie der Freiheit*; and *F. Nietzsche, ein Kämpfer gegen seine Zeit.* M. Stirner, *Der Einzige und seine Eigenschaft.* See also R. Schellwien, *Max Stirner und Friedrich Nietzsche.*

Friedrich Nietzsche's life has been published by the philosopher's sister, Frau E. Förster-Nietzsche. A characterisation, disavowed by Nietzsche's admirers, was written by Frau Lou Andreas Salome, under the title *F. Nietzsche in seinen Werken.* Other works kindred in spirit are Schellwien's *Der Geist der neueren Philosophie*, 95, and *Der Darwinismus*, 96; also Adolf Gerecke, *Die Aussichtslosigkeit des Moralismus*; Schmitt, *An der Grenzscheide zweier Weltalter*; Károly Krausz, *Nietzsche und seine Weltanschauung.*

[2] Henri Lichtenberger, *La philosophie de Nietzsche.* Paris, Alcan, 1898.

It expects to attain liberty by strengthening the single individual, which is to build up egoistical communities. It repudiates the plan of revolutionising the masses, and the use of violence. It stands up for the pathfinders in literature and art, for personality, for that which is characteristic.

Another anarchistic periodical that stands under the influence of Nietzsche appears in Budapest,[1] Hungary, under the name *Ohne Staat*, i. e., Without Government, as "the organ of ideal anarchists," under the editorship of Karl Krausz,[2] in German and Hungarian. In England *The Eagle and the Serpent* serves as an exponent of Nietzsche's philosophy. It characterises its own tendency as follows:

"*The Eagle and the Serpent* is a bi-monthly journal of egoistic philosophy and sociology which teaches that in social science altruism spells damnation and egoism spells salvation. In the war against their exploiters the exploited cannot hope to succeed till they act as a unit, an 'ego.'"[3]

A reader of *The Eagle and the Serpent* humorously criticises the egoistic philosophy as follows:[1]

"DEAR EAGLE AND SERPENT,—I am one of those unreasonable persons who see no irreconcilable conflict between egoism and altruism. The altruism of Tol-

[1] Budapest, Hungary, Festung Herrengasse 58.

[2] Herr Karl Krausz and Dr. Eugen Heinrich Schmitt, the Hungarian editor of *Ohne Staat*, have ceased to work in harmony, since the latter changed the title *Államnélkül* (i. e., Without State) into *Erőszaknélkül* (i. e., Without Violence), with the subtitle *Közlöny Krisztusi Szellemében* (i. e., An Organ in the Spirit of Christ). Dr. Schmitt believes in peaceful, Christian anarchism, which Herr Krausz regards as self-contradictory.

We may incidentally mention that a contributor to *Ohne Staat* reproduced one of the Homilies of St. Chrysostom, in which he harangues after the fashion of the early Christian preachers against wealth and power. The state's attorney not versed in Christian patristic literature, seized the issue and placed the man who quoted the old Byzantine saint behind the prison bars. In the November issue (1898) Dr. Schmitt mentions the case and says: "Thus we have an exact and historical proof that the liberty of speech and thought was incomparably greater in miserable, servile Byzantium than it is now in the much more miserable and more servile despotism of modern Europe." Does not Dr. Schmitt overlook the fact that in the days of Byzantine Christianity the saints were protected by the mob, which was much feared by the imperial government and was kept at bay only by a nominal recognition of its claims and beliefs?

[3] Address: The Eagle and Serpent Publishing Co., 185 Fleet Street, London, England.

stoy is the shortest road to the egoism of Whitman. The unbounded love and compassion of Jesus made him conscious of being the son of God, and that he and the Father were one. Could egoism go further than this? I believe that true egoism and true altruism grow in precisely equal degree in the soul, and that the alleged qualities which bear either name and attempt to masquerade alone without their respective make-weights are shams and counterfeits. The real desideratum is balance, and that cannot be permanently preserved on one leg. However, you skate surprisingly well for the time being on one foot, and I have enjoyed the first performance so well that I enclose 60 cents for a season-ticket.—ERNEST H. CROSBY, Rhinebeck, N. Y., U. S. A."

In America Nietzsche's philosophy is represented by Ragnar Redbeard who published a book entitled *Might is Right, the Survival of the Fittest.*[1] The author characterises his work as follows:

"This book is a reasoned negation of the Ten Commandments—the Golden Rule—the Sermon on the Mount—Republican Principles—Christian Principles—and "Principles" in general.

"It proclaims upon scientific evolutionary grounds, the unlimited absolutism of Might, and asserts that cut-and-dried moral codes are crude and immoral inventions, promotive of vice and vassalage."

Ragnar Redbeard is a most ardent admirer of Nietzsche, as may be learned from his verses made after the pattern of Nietzsche's poetry. Ragnar Redbeard sings:

"There is no 'law' in heaven or earth that man must needs obey! Take what you can, and all you can; and take it while you—may.

"Let not the Jew-born Christ ideal unnerve you in the fight. You have no 'rights,' except alone the rights you win by—might.

"There is no justice, right, nor wrong; no truth, no good, no evil. There is no 'man's immortal soul,' no fiery, fearsome Devil.

"There is no 'heaven of glory:' No!—no 'hell where sinners roast.' There is no 'God the Father,' No!—no Son, no 'Holy Ghost.'

"This world is no Nirvâna where joy forever flows. It is a grewsome butcher shop where dead 'lambs' hang in—rows.

"Man is the most ferocious of all the beasts of prey. He rangeth round the mountains, to love, and feast, and—slay.

"He sails the stormy oceans, he gallops o'er the plains, and sucks the very marrow-bones of captives held in—chains.

"Death endeth all for every man,—for every 'son of thunder'; then be a lion (not a 'lamb') and—don't be trampled under."

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[1] Published by Adolph Mueller, 108 Clark street, Chicago.

The latest periodicals in the same line are the **I** (which presumably means "*the big I*"), edited by C. L. Swartz, Wellesley, Mass., and *The Free Comrade*, edited by J. Wm. Lloyd, the author of *A Red Heart in a White World.* In their editorial notes these egoists speak of Elbert Hubbard, editor of *The Philistine*, as one of their own, and as "comrade." The truth is that *The Philistine* calls itself "a periodical of protest," but it protests against unkindness and lack of brotherly sentiment, not against rule and logic. Mr. Hubbard's force lies in his satire, which combines two rare qualities, pointedness and good nature, but if he is anything, he is an altruist by instinct, not an egoist. To use Nietzsche's terminology, we should say that "he is one of those shallow heads who still believe in the ideal."

CONCLUSION.

Nietzsche is unquestionably a bold thinker, a Faust-like questioner, and a Titan among philosophers. He is a man who understands that the problem of all problems is the question, Is there an authority higher than myself? And having discarded belief in God, he finds no authority except pretensions.

Nietzsche apparently is only familiar with the sanctions of morality and the criterion of good and evil as they are represented in the institutions and thoughts established by history, and seeing how frequently they serve as tools in the hands of the crafty for the oppression of the unsophisticated masses of the people, he discards them as utterly worthless. Hence his truly magnificent wrath, his disgust, his contempt for underling-man, this muddy stream of present mankind.

If Nietzsche had dug deeper, he would have found that there is after all a deep significance in moral ideals, for there is an authority above the self by which the worth of the self must be measured. Truth is not a mere creature of the self, but is the comprehension of the immutable eternal laws of being which constitute the norm of existence. Our self, "that creating, willing, valuing 'I,' which (according to Nietzsche) is the measure and value of all things," is

itself measured by that eternal norm of being, the existence of which Nietzsche does not recognise.

Nietzsche is blind to the truth that there is a norm above the self, and that this norm is the source of duty and the object of religion; he therefore denies the very existence of duty, of conviction, of moral principles, of sympathy with the suffering, of authority in any shape, and yet he dares to condemn man in the shape of the present generation of mankind. What right has he, then, to judge the sovereign self of to-day and to announce the coming of a higher self in the over-man? From the principles of his philosophical anarchism he has no right to denounce mankind of to-day, as an underling; for if there is no objective standard of worth, there can be no sense in distinguishing between the under-man of to-day and the over-man of a nobler future.

Nietzsche is a Titan and he is truly Titanic in his rebellion against the smallness of everything that means to be an incarnation of what is great and noble and holy. But he does not protest against the smallness of the representatives of truth and right, he protests against truth and right themselves, and thus he is not merely Titanic, but a genuine Titan,—attempting to take the heavens by storm, a monster, not superhuman but inhuman in proportions, in sentiment and in spirit. Being ingenious, he is, in his way, a genius, but he is not evenly balanced; he is eccentric and, not recognising the authority of reason and science, makes eccentricity his maxim. Thus his grandeur becomes grotesque.

The spirit of negation, the mischief-monger Mephistopheles, says of Faust with reference to his despair of reason and science:

> "Verachte nur Vernunft und Wissenschaft,
> Des Menschen allergrösste Kraft,
> So hab' ich dich schon unbedingt."

Being giant-like, the Titan Nietzsche has a sense only for things of large dimensions. He fails to understand the significance of the subtler relations of existence. He is clumsy like Gargantua; he is coarse in his reasoning; he is narrow in his comprehension; his horizon is limited. He sees only the massive effects of the

great dynamical changes brought about by brute force; he is blind to the quiet and slow but more powerful workings of spiritual forces. The molecular forces that are invisible to the eye transform the world more thoroughly than hurricanes and thunderstorms; yet the strongest powers are the moral laws, the curses of wrong-doing and oppression, and the blessings of truthfulness, of justice, of good-will. Nietzsche sees them not; he ignores them. He measures the worth of the over-man solely by his brute force.

If Nietzscheanism were right, the over-man of the future who is going to take possession of the earth will not be nobler and better, wiser and juster than the present man, but more gory, more tiger-like, more relentless, more brutal.

Nietzsche has a truly noble longing for the advent of the over-man, but he throws down the ladder on which man has been climbing up, and thus losing his foothold, he falls down to the place whence mankind started several millenniums ago.

We enjoy the rockets of Nietzsche's genius, we understand his Faust-like disappointment as to the unavailableness of science such as he knew it; we sympathise with the honesty with which he offered his thoughts to the world; we recognise the flashes of truth which occur in his sentences, uttered in the tone of a prophet; but we cannot help condemning his philosophy as unsound in its basis, his errors being the result of an immaturity of comprehension.

Nietzsche has touched upon the problem of problems, but he has not solved it. He weighs the souls of his fellowmen and finds them wanting; but his own soul is not less deficient. His philosophy is well worth studying, but it is not a good guide through life. It is great only as being the gravest error, boldly, conscientiously, and seriously carried to its utmost extremes and preached as the latest word of wisdom.

It has been customary that man should justify himself before the tribunal of morality, but Nietzsche cites morality itself before his tribunal. Morality justifies herself by calling on truth, but the testimony of truth is ruled out, for truth—objective truth—is denounced as a superstition of the dark ages. Nietzsche knows truth only as a contemptible method of puny spirits to make exist-

ence conceivable,—a hopeless task! Nietzsche therefore finds morality guilty as a usurper and a tyrant, and he exhorts all *esprits forts* to shake off the yoke.

We grant that the self should not be the slave of morality; it should not feel the "ought" as a command; it should identify itself with it and make its requirements the object of his own free will. Good-will on earth will render the law redundant; but when you wipe out the ideal of good-will itself together with its foundation, which is truth and the recognition of truth, the struggle for existence will reappear in its primitive fierceness, and mankind will return to the age of savagery. Let the *esprits forts* of Nietzsche's type try to realise their master's ideal, and their attempts will soon lead to their own perdition.

We read in *Der arme Teufel*,[1] a weekly whose radical editor would not have been prevented by conventional reasons from joining the new fad of Nietzscheanism, the following satirical comment on some modern poet of original selfhood:

"'I am against matrimony simply because I am a poet. Wife, children, family life,—well, well! they may be good enough for the man possessed of the herding instinct. But I object to trivialities in my own life. I want something stimulating, sensation, poetry! A wife would be prosaic to me, simply on account of being my wife; and children who would call me papa would be disgusting. Poetry I need! Poetry!' Thus he spoke to a friend, and when the latter was gone continued his letter reproaching a waitress for again asking for money and at the same time reflecting upon the purity of her relations to the bartender whom she had said was her cousin only. . . ."

If marriage relations were abolished to-day, would not in the course of time some new form of marriage be established? Those who are too proud to utilise the experiences of past generations, will have to repeat them for themselves and must wade through their follies, sins, errors, and all their penalties.

Nietzsche tries to produce a Cæsar by teaching his followers to imitate the vices of a Catiline; he would raise gods by begetting Titans; he endeavors to give a nobler and better standard to man-

[1] May 13, 1899. Detroit, 949 Gratiot Ave.

kind, not by lifting the people higher and rendering them more efficient, but by making them more pretentious.

If the ethics of Nietzsche were accepted to-day as authoritative, and if people at large acted accordingly, the world would be benefited in one respect, viz., hypocrisy would cease, and the selfishness of mankind would manifest itself in all its nude bestiality. Passions would have full sway; lust, robbery, jealousy, murder, and revenge would increase, and Death in all forms of wild outbursts would reap a richer harvest than he ever did in the days of prehistoric savage life. The result would be a pruning on a grand scale, and after a few bloody decades those only would survive who either by nature or by hypocritical self-control deemed it best to keep the lower passions and the too prurient instincts of their selfhood in proper check, and then the old-fashioned rules of morality, which Nietzsche declared antiquated, would be given a new trial in the new order of things. They might receive another sanction, but they would find recognition.

Nietzsche forgets that the present social order originated from that general free-for-all fight which he commends, and if we begin at the start we should naturally run through the same or a similar course of development to the same or very similar conditions. Will it not be better to go on improving than to revert to the primitive state of savagery?

There are superstitious notions about the nature of the sanction of ethics, but for that reason the moral ideals of mankind remain as firmly established as ever.

The self is not the standard of measurement for good and evil, good and bad, as Nietzsche declares in agreement with the sophists of old; the self is only the condition to which and under which it applies. There is no good and evil in the purely physical world, there is no suffering, no pain, no anguish—all this originates with the rise of organised animal life which is endowed with sentiency; and further there is no goodness and badness, no morality until the animal rises to the height of comprehending the nature of evil. The tiger is in himself neither good nor bad, but he makes himself a cause of suffering to others; and thus he is by them regarded as

bad. Goodness and badness are relative, but for that reason they are not unreal.

It is true that there is no "ought" in the world as an "ought"; nor are there metaphysical ghosts of divine commandments revealing themselves. But man learns the lesson how to avoid evil and reducing it to brief rules which are easily remembered, he calls them "commandments."

Buddha was aware that there is no metaphysical ghost of an "ought," and being the first positivist before positivism was ever thought of, his decalogue is officially called "avoiding the ten evils," not "the ten commandments," the latter being a popular term of later origin.

Granting that there is no metaphysical "ought" in the world and that it finds application only in the domain of animate life through the presence of the self or rather of many selves, we fail to see that the self is the creator of the norm of good and evil. We grant also that there are degrees of comprehending the nature of evil and that different applications naturally result under different conditions, we cannot for that reason argue that ethics are purely subjective and that there is no objective norm that underlies the moral evolution of mankind and comes out in the progress of civilisation more and more in its purity.

Nietzsche is like a schoolboy whose teacher is an inefficient pedant. He rebels against his authority and having had but poor instruction proclaims that the multiplication table is a mere superstition with which the old man tries to enslave the free minds of his scholars. Are there not different solutions possible of the same example and has not every one to regard his own solution as the right solution? How can the teacher claim that he is the standard of truth? Why, the very attempt at setting up a standard of any kind is tyranny and the recognition of it is a self-imposed slavery. There is no rightness save the rightness that can be maintained in a general hand-to hand contest, for it is ultimately the fist that decides all controversies.

Nietzsche calls himself an atheist, he denies the existence of God in any form, and thus carries atheism to an extreme where it

breaks down in self-contradiction. We understand by God (whether personal, impersonal, or superpersonal) that something which determines the course of life; the factors that shape the world, including ourselves; the law to which we must adjust our conduct. Nietzsche enthrones the self in the place of God, but for all practical purposes his God is blunt success and survival of the fittest in the crude sense of the term; for according to his philosophy the self must heed survival in the struggle for existence alone, and that, therefore, is his God.

Nietzsche's God is power, i. e., overwhelming force, which allows the wolf to eat the lamb. He ignores the power of the still small voice, the effectiveness of law in the world which makes it possible that man, the over-brute, is not the most ferocious, the most muscular, or the strongest animal. Nietzsche regards the cosmic order, in accommodation to which ethical codes have been invented, as a mere superstition. Thus it will come to pass that Nietzsche's type of the over-man, should it really make its appearance on earth, would be wiped out as surely as the lion, the king of the beasts, the proud pseudo-overbrute of the animals, will be exterminated in course of time. The lion has a chance for survival only behind the bars of the zoölogical gardens or when he allows himself to be tamed by man, that weakling among the brutes whose power has been built up by a comprehension of the sway of the invisible laws of life, physical, mental and moral.

Verily, the over-man will come, although he is not quite so near at hand as one might wish. He is at hand though, but he will not come such as Nietzsche announces him, in the storm of a catastrophe. The fire and the storm may precede the realisation of a higher humanity; but the higher humanity will be found neither in the fire nor in the storm. The over-man will be born of the present man, not by a contempt for the shortcomings of the present man, but by a recognition of the essential features of man's manhood, by developing and purifying the truly human by making man conform to the eternal norm of rationality, humaneness and rightness of conduct.

What we need first is the standard of the higher man; and on

this account we must purify our notions of the norm of truth and righteousness,—of God. Let us find first the over-God, and the over-man will develop naturally. The belief in an individual God-being is giving way to the recognition of a superpersonal God, the norm of scientific truth, the standard of right and wrong, the standard of worth by which we measure the value of our own being; and the kingdom of the genuine over-man will be established by the spread of the scientific comprehension of the world, in matters physical, social, intellectual, moral, and religious.

EDITOR.

LITERARY CORRESPONDENCE.

FRANCE.

M. L. RIBERT, in his *Essai d'une philosophie nouvelle suggérée par la science*, correctly maintains on the one hand that the scientific foundation which alone is capable of furnishing a solid support for a philosophy, was never sufficiently broad until the second part of the nineteenth century; and, on the other hand, that the abortions of metaphysics, even in the hands of the successors of Kant, are in no wise to be attributed to a radical incapacity of reason. He vigorously upholds the powers of the intellect, as supported by a less imperfect science, and seeks in his own turn to erect a new system. M. Ribert's system was "suggested," as the title of his work proclaims, by the teachings of science; it would be less exact to say that it could be deduced from science, and I should express the facts by saying that it rather appeals to science for support than results from it as a natural conclusion. I could not give an epitome of the system in a few lines. M. Ribert reaches his conclusions by a long path which the reader will readily traverse with him, and his conscientious critical labors proclaim him in every sense a man of learning and of merit.

As to the difficulty of passing from the physical world to the moral world, M. Ribert chooses as evidence of the passage, *sensation*, which he carefully distinguishes from all the movements which provoke it, accompany it, or follow it. But how is sensation to be defined? It is, he tells us, the translation of nervous processes into terms of consciousness; that is to say, into a language so absolutely original as apparently to retain nothing whatever of the

text translated, or even to afford any ground whatever for conjecturing it.

As to the *state of consciousness* itself, we must now consider it as the depository of a certain quantity of energy; it is nervous motion transformed. Now, ought not this motion as absorbed by sensation to be found again in sensation in its virtual state? It is in this sense, M. Ribert thinks, that ideas are forces: "They can give back as motion that which they received as motion; but they received it in darkness, and they give it back illuminated by consciousness, which is their very nature." Such conclusions, thinks the author, are alike removed from spiritualism and from materialism. In truth, the metaphysical solution proposed by him involves a dualism; but it is, he says, a rejuvenated dualistic conception. He conceives the universe as the fruit of a compact and indissoluble union, of a profound reciprocal penetration, of *infinite virtuality*, everywhere present, with an innumerable multitude of material elements everywhere distributed. The ultimate secret of the nature of things in this hypothesis is a "fundamental relation" of realities and beings which manifest themselves solely by their action upon one another. This unquestionably is tantamount only to representing the principal forms of existence; the positive aspects of reality still remain to be explained by their help. This M. Ribert attempts to do in the space of several pages. I should not risk saying that he has altogether succeeded, and the least defect of his conception is perhaps the necessity in which he finds himself of invoking the "unrest" and profound "disquietude" of virtuality, etc., and of translating immediately into terms of sensation the original situations from which sensation itself should start.

A problem of this character resembles in some respects the problem which ends a game of chess. The thing required is to solve the problem according to a given situation of the pieces that are left. As to guessing the situations that precede, and inferring the position of the different pieces at the beginning of the contest, this would not be possible for a player who had not conducted the game himself, or to a spectator who is ignorant of the rules of the game. This crude example may enable us perhaps to comprehend

better what the essential difficulties of every metaphysical attempt at explanation is, and how also science alone can render such explanation possible by resolving one after another the well-defined questions which reality presents.

Whatever misgivings one may have with regard to the hypothesis of M. Ribert, it nevertheless is deserving of study at first-hand. Many of the author's ideas upon social problems appear to me correct, and I have read them with sympathy.

* * *

The last work of M. De Roberty, *Les fondements de l'éthique, troisième essai sur la morale considerée comme sociologie élémentaire,* does not appear to me to have any well-defined object. It is not well compacted, but it is also one of the best which the author has written, although embarrassed by widely divergent considerations in which the connecting link sometimes escapes the reader. I would call attention to the author's interesting views (1) on art, which M. de Roberty shows to be the apprehension of truths of a certain order selected by the artist; (2) upon the teleological problem,—a problem which has been falsified by the factitious antinomy of cause and effect, which does not prevent finality, that is, cause transformed into purpose or motive of action, from being the characteristic criterion of moral or social existence; (3) upon the general theory of crime, founded upon the essential sameness of the crime and the punishment,—where I shall not follow the author; (4) upon the problem of unity, where he reaffirms anew his monism, the highest expression of which is found for him in what he calls "social psychism,"—the ultimate transformation, if I interpret it aright, of the universal energy; and finally, (5) upon the theory of progress which, like all his other theories, is deserving of both criticism and meditation.

I have spoken several times here of the debate which divides psychologists. Is M. de Roberty a partisan of the psychological school with M. Tarde, or of the determinist, economical school with M. Durkheim? He criticises them both; he reproaches them with not having succeeded in explaining "the necessary movement which carries societies towards unknown destinies." The facts, he

says, which they both invoke as causes,—the bio-social facts on the one hand and the institutions on the other,—are ultimately the results only of the "pure or elementary social phenomenon," of consolidated groups of facts, of concretions, so to speak. According to M. de Roberty, the hypothesis of an unconscious and unintentional "psychicity," springing from the mutual contact of the physiological psychicities, and exercising a direct influence upon the formation of our ideas, sentiments, and volitions,—direct agents or immediate causes of social phenomena,—such an hypothesis alone appears to be able to dissipate the darkness which surrounds the strange, mysterious fact of a series of unconscious and involuntary changes due as a totality to such factors as the mobile consciousness and fugitive intention of the passing hour. But is this not tantamount to admitting that the fact of living in societies determines a new state of psychological individuality,—a state which manifests itself by institutions of all orders, by positive phenomena which remain of necessity the subject-matter or object of study of sociology? It does not seem to me possible to understand differently this "psychicity" without making of it an incomprehensible entity.

* * *

The work of M. F. RAUH, *De la méthode dans la psychologie des sentiments*, is a vindication, particularly directed against M. Ribot, of the so-called intellectualist theory of the emotions. I have to criticise this work for being slightly confused, which is probably due to its wealth of details, and for being embarrassed in its terminology, despite its superfluity of definitions, which are in themselves difficult to understand. But this criticism does not prevent us from recognising the great erudition of M. Rauh, the skilfulness of his treatment, and the justice of a number of his criticisms, which afford material for reflexion even when they do not compel conviction. He is wrong, I think, in imputing to all the partisans of the physico-mechanical and physico-chemical theories as he calls them, the intention of subverting the hypothesis of a "psychical virtuality" acting in the economy of the world. The truth is that we

can accept this hypothesis, which is a metaphysical one, without disqualifying ourselves from studying reality as it is actually offered to us, that is of considering psychological facts under the form of a strict dependence upon the moral and psychical order. This way of looking at things has suggested several valuable works. It has put psychologists upon the track of useful researches and fruitful observations. That they have been seized too soon with the ambition of simplifying the facts in order to explain them, that they have chosen with too great complacency this or that order of phenomena as their explanatory principle, I will not deny. But we should not be excessively severe with them on this score. They have brought order into chaos, they have upon the whole disentangled the complex subject-matter of psychology, and have prepared a better field for future discussions.

M. Rauh seems to me to be especially right in his view that in the present state of affairs we should not enunciate systems, but should be contented with "limited syntheses" and "laws of detail," and should thus leave psychology for the time being more free, supple, and undulating, and less abstract. He is again partly right in refusing to admit that the lower explains the higher; but his attitude here ought not to lead us to neglect the analysis of elementary or rudimentary psychological states, genetic studies, and the experiments of the laboratory. Simple descriptions should not be accepted for *total* explanations; nevertheless, it is true that all real knowledge of the higher has the knowledge of the lower for its foundation, and that the intimate bonds existing between natural things cannot be broken without damage.

I suppose that no objection will be made against M. Rauh's view that we clearly conceive and know the phenomena of conscience "under the form of pure psychical forces, of which human feelings furnish the type." Granting that our effort to interpret the world is satisfied by such a conception, has our curiosity to know it been exhausted? Let us continue, then, to work and carefully to systematise our materials, without any concern for metaphysical propositions, which forestall and overleap the immediate problems which it is important to resolve.

I shall make brief mention only of the following works: *Le Catholicisme et la vie de l'esprit*,[1] by M. G. L. FONSEGRIVE, a work which comes to us as a fragment of apologetic demonstration for Catholicism, in the service of which the author has placed his talent as a writer, and his skill and acumen in dialectics and criticism; *Le libre-arbitre*, by M. E. NAVILLE, where an energetic plea is made for the "admission of some element of relative liberty" into the plan of the universe; *La foi morale, et reflets de foi morale*, by M. HARRACA, a notable contribution to the work of the Society for Ethical Culture which may be commended, provided we do not forget that ethics should not be separated from some definite vivifying doctrine, and that the very conduct of life, properly interpreted, involves from the very outset some lofty religious or philosophical conclusion.

Le rôle social de la femme, by Mme. ANNA LAMPÉRIÈRE, a little book full of common sense, which has come at the right time. *L'âme du criminel*, by DR. MAURICE DE FLEURY,—a study based upon the facts and data of science, and leading to practical conclusions both for prophylactics and for the suppression of crime.

L'idéalisme social, by M. E. FOURNIÈRE,—a work of confiding ardor in which the author takes up again, in the style of the socialist school of which he is a member, the questions of property, family, and state, and of which the directing thought familiar to many modern thinkers is that there are no social fatalities, that without us and beyond us the universe is an act of fatality, that through us and in us it becomes an act of will. *Psychologie du socialisme*, by M. G. LE BON, an important work diametrically opposed to the preceding, full of facts and ideas, of correct form and interesting quotations, in which M. Le Bon shows very well the fundamental error of socialism and the danger of that doctrine for the Latin countries in particular; but to oppose which he knows of nothing else than a negative scepticism, the absence of all ideals, and a submission to the mechanical order of the world, which it is the

[1] Lecoffre, publisher. Where no name is mentioned, the publisher is F. Alcan.

task of man to transform continually into an order of morality and justice.

L'Ignorance et L'Irréflexion, by M. GÉRARD VARET, an ingenious and learned thesis for the doctorate; *Nouvelles Études de Mythologie*, by MAX MUELLER, translated by M. Léon Job; *La Nouvelle monadologie*,[1] by MM. RENOUVIER and PRAT, which I am permitted to mention merely, despite the importance of the authors and the work.

LUCIEN ARRÉAT.

PARIS.

[1] Colin, publisher.

CRITICISMS AND DISCUSSIONS.

THE GOD-PROBLEM.—CRITICISM OF AN AGNOSTIC, WITH AN EDITORIAL REPLY.

IS DR. CARUS A THEIST?

Dr. Carus recently lectured before the Philosophical Club of the University of Chicago, and on another occasion before the Philosophical Club of the University of Ann Arbor, on "God." This lecture is published in the October *Monist*, of which it forms the most attractive feature.

Even from the standpoint of the Atheist, Dr. Carus opines, "the God-idea remains the most important thought in the history of the world." "It is neither irrelevant nor an aberration, but contains the most important, the deepest and most comprehensive, philosophically the most explanatory, and practically the most applicable truth of all truths." And then Dr. Carus vehemently assails the Agnostic position as he conceives it:

"Agnosticism . . . . as a bankruptcy of thought, is not only the weakest, but also the most injurious, philosophy. It is the philosophy of indolence, which, on account of its own insolvency, declares that the most vital questions of man's life, the questions of the soul, the soul's relation to the body, the immortality of the soul, the existence of God, the creation, and the ultimate purpose of being, are beyond the reach of reason."

Especially Dr. Carus discovers a rock of offence in such a "glittering phrase" as "the finite cannot comprehend the infinite." Is Dr. Carus able to "comprehend" infinite space? Apply mathematics to that conception; no reasoning from "mathematical lines" and "mechanical contrivances" will assist such comprehension: we may apprehend what we do not comprehend.

Dr. Carus affirms that there are but two kinds of Agnosticism—"the pious Agnosticism of him who would not allow the light of science to shine upon the problems of religion; and the infidel Agnosticism of the scoffer, who argues that, knowledge on matters of religion being unattainable, we ought to leave religion alone." The latter proposition is offensively worded and loosely phrased. What is "infidel Agnosticism"? Infidel implies "faithless"; does Dr. Carus mean that the "scof-

fer" is "infidel" to Agnosticism? But should such "scoffer" argue that "knowledge of matters of religion [is] unobtainable," that is a faith. To what, then, is even the "scoffer" faithless? The orthodox Christian Theist might describe Dr. Carus's position as "infidel Theism," and we should anticipate an exposure of such misuse of words. "Christian Agnosticism" is an oblique compliment to Agnosticism; "infidel Agnosticism" an illogical offence.

"While even the Atheist's denial will be helpful,"—not *may*, be it noted, but *will*—"the Agnostic position is neither theoretically valid nor practicable, for it leaves all opinions, be they scientific, superstitious, or mere guesswork, on the same level of equal incommensurability." Exactly what is meant by "equal incommensurability" in this connexion is, for us, mere "guesswork." We have a "superstitious" conviction that Dr. Carus is devoutly sincere, but not infallible; that in his aggressive bias against Agnosticism he is not always lucid, any more than discriminating.

We have noted his generous acceptance of the "help" of the "Atheist's denial." Here again he errs. We have not understood "Atheism" to imply absolute denial, but rather as a suspensive negation of theological affirmations. Assuming that "Atheists"—or those who think they are "Atheists"—are committed to denial, "Atheism" has no place in philosophy except as an unphilosophical reliance on borrowing intellectual capital from, and trading on the name of, a non-existent rich relation.

But the god of Carusian Monism is either reaching a loftier height of poetical and ethical ideal, or is emerging from philosophical abstraction into definite affirmation, and is by means of a human soul, whose noble sincerity is indisputable, revealing himself to man through editorial expositions in *The Monist*. Lord Herbert of Cherbury claimed a revelation from God to publish a refutation of a respectably venerable "revelation." Our suggestion should be obvious.

This is what Dr. Carus publishes to the world:

"God is, further, not an indifferent being to us. He has a personal and private relation to all his creatures, being nearer to every one of them than the beating of their hearts and the neural vibration of their brains. He is in them, and yet different to them, and infinitely high above them. He is their life, their home, whence they start, and the goal whither they travel. God is not like us, but we are like him. He is the light of our life. He is the mariner's compass which guides us, and the anchor of hope on which we rely. Unless we feel his presence, we shall find no peace in the restlessness of this world. Unless we sanctify our lives by the purport which his existence imparts to all life, we can find no comfort in our afflictions. Unless we recognise that our soul is an actualisation of his eternal thoughts, we shall not learn to fight the right way in the struggle for existence Unless we listen to the still, small voice that teaches us our duties, we shall not obtain that blissful assurance which the childship of God alone can afford."

This certainty of utterance seems to be inspired by a new conviction. Such new conviction may command our remote admiration if explicitly avowed. Of absolute sincerity in any conviction there is no question. We do not allude to

"abstractions as being empty," nor is Dr. Carus in appeal or rebuke to Agnostics in any sense to be compared to a "missionary" addressing "Zulus, or, in our midst . . . . a Salvationist meeting."

To one querist—in what is alluded to as a "lively discussion" at the Chicago Club—who asked if Dr. Carus did "not explain too much," it was counter-queried: "Is it possible to explain too much?" In answer to another question, Dr. Carus alleged that his conception of God "was not only compatible with the Christian conception; it is the Christian conception itself, in its matured and purified form." We ask for more explanation. "Is it possible to explain too much?"

We yield to none in admiration of the splendid and catholic spirit, the lofty ethical inspiration, the ofttimes exactitude of philosophical thought and definition, that we associate with the attractive personality of Dr. Carus. His persistent misconceptions of Agnosticism we have willingly—although regretfully—attributed to unconscious bias, in degree of rebellion against dogmatic delimitation of the knowable. Time was when he appeared as the apostle of science in denial of knowledge other than physical science can yield. And we who have—on this side of the Atlantic—through many years acclaimed his work, despite his petulant upbraiding of Agnosticism, have now the right to ask for "light, more light." Have the "Philosophy of Science," the "Science of Religion and the Religion of Science," evolved a coherent Theistic belief? If not, is it inconceivable that Theists may reasonably assume that the editor of *The Monist* has a god-knowledge he is able to announce. "Is it possible to explain too much?" AMOS WATERS in *The Literary Guide*.

IN REPLY TO MR. AMOS WATERS.

Being always anxious to have his views pass through the furnace of criticism, the editor of *The Monist* has republished from *The Literary Guide* of London, England, Mr. Amos Waters's friendly but energetic protest against his "vehemently assailing the Agnostic position." In reply we make the following comments:

I am loath to reopen the debate on Agnosticism, and repeat here only that there are many kinds of Agnosticism. On some other occasion I expressed my approval of the Agnosticism of modesty, which is a suspension of judgment so long as there are not adequate grounds to be had for forming an opinion. But the Agnosticism of modesty is a personal attitude, not a doctrine. As soon as it is changed into a doctrine it becomes the Agnosticism of arrogance. By Agnosticism of arrogance I understand the theory that the main problems of life (viz., concerning the existence or non-existence of God and of the soul, as to the immortality of the soul, and the relation of the soul to the body, as to the origin of life, the nature and authority of morals, etc., etc.,) are not within the ken of human comprehension. There is no need of entering now into details, as I have discussed the subject time and again and there is no need of repeating myself.[1]

[1] See *Homilies of Science*, pp. 213 ff.; *The Open Court* No. 212.; *Fundamental Problems*, pp. 154 ff.; and *Primer of Philosophy*, *passim*.

Mr. Herbert Spencer is the representative Agnostic thinker, and when I criticise Agnosticism, I mean Mr. Spencer's Agnosticism. His Agnosticism is not a mere suspense of judgment but a most emphatic declaration that the mystery of life is utterly incomprehensible, that the substance of the soul (whatever that may mean) cannot be known, that energy is inscrutable, etc., etc. He has of late reiterated his principle in censuring Professor Japp for asserting that organised life cannot have risen from inorganic nature and Mr. Spencer declares expressly that he rejects the opposite view too. He rejects both horns of the dilemma, the affirmation as well as the denial, winding up his argument with these words:

"My own belief is that neither interpretation is adequate. A recently issued revised and enlarged edition of the first volume of the *Principles of Biology* contains a chapter on 'The Dynamical Element in Life,' in which I have contended that the theory of a vital principle fails and that the physico-chemical theory also fails; the corollary being that in its ultimate nature life is incomprehensible."

This high-handed way of condemning the very attempt at solving a problem on the plea that it is insolvable is the Agnosticism which I reject. I know that Mr. Spencer is commonly regarded as the most liberal, progressive, and most scientific philosopher, but I cannot help thinking that he is not. Mr. Amos Waters must not blame me for not joining the liberals in their enthusiastic laudation of Agnosticism; for Agnosticism is to my mind illiberal, anti-scientific, and reactionary in the highest degree.

How does Mr. Spencer know that the main problem of Biology, the question as to the origin of organised life, lies beyond the ken of human knowledge? Judging from the tone of his expositions he is not informed on the present state of things and has not very closely followed the investigations of biologists. And how does Mr. Spencer prove his proposition? He does so in the old fashioned dogmatic way, by quoting scriptures. There is only this difference between him and the theologian, that the latter quotes from the Bible and Mr. Spencer refers to his own writings.

Mr. Amos Waters, I know, understands by Agnosticism the Agnosticism of modesty, a suspense of judgment as to problems as yet unsolved, and I repeat that I gladly join him on that score, but Agnosticism is commonly understood as Mr. Spencer defines it, and whatever admiration we may have for Mr. Spencer personally, for his noble intentions, his studious habits, his industrious collection of interesting materials, his versatility in writing on various subjects, we must not be blind to the truth that his philosophy is wrong in its roots and exercises as baneful an influence as does the religious Dogmatism which it attempts to replace. Its main usefulness consists in stimulating thought and in disquieting the complacent assurance of the old fogies, who imagine themselves in possession of the whole truth.

There are some minor points in Mr. Amos Waters's comments. He says: "We may not apprehend what we do not comprehend."

In my opinion the reverse is true. There are many things which cannot be

apprehended and yet are they quite comprehensible. For instance, there is nothing incomprehensible in infinitude; but we cannot apprehend infinite space. In other words, it is impossible to make anything infinite (i. e., infinite space, or eternity, i. e., infinite time) an object of immediate apperception, to perceive it by the senses; but we can understand it to perfection and there is nothing mysterious about it. That we cannot apprehend any infinitude is as much a matter of course as that in counting we can never count up to infinity, or that we cannot bodily be in several places at the same time. It is a physical impossibility, but there is nothing mysterious about it; nothing that might cause us to turn Agnostic.

Mr. Amos Waters is startled to learn that the God-conception proposed in *The Monist* is "the Christian conception itself in its matured and purified form." This is nothing to be alarmed at, for it is simply the statement of a historical fact. The Christian God-conception has undergone changes. The God of the church authorities who instituted the inquisition is different from the God of the Reformers, and the God of Calvin is no longer the God of the Presbyterians of to-day. My own God-conception has developed from the traditional Protestant God-idea and has been modified under the influence of science, passing through a period of outspoken Atheism, until it was transformed into what some sarcastic but friendly critics of mine have called the God-conception of Atheism—the doctrine of the superpersonal God, which has been set forth at length in the October number of *The Monist* and has become a stumbling block to Mr. Amos Waters.

I am fully satisfied that my article on God is sufficiently clear not to be misunderstood as a pandering to that kind of God-belief which I have unhesitatingly and without any Agnostic suspense of judgment branded as a superstition. Mr. Amos Waters must bear in mind that I have not requested any one to believe in God, but have simply investigated the question of what God must be, if we understand by God that something which moulds the world and shapes the fate of man. I have, however, come to the conclusion, and am becoming more and more convinced, that the superpersonal God, the God of science, the eternal norm of truth and righteousness, is God, indeed; he alone is God. He is what the pagans (including the pagan Christians) have been groping after for ages. P. C.

BOOK REVIEWS.

ELEMENTS OF THE SCIENCE OF RELIGION. Part II. Ontological; Being the Gifford Lectures Delivered Before the University of Edinburgh in 1898. By *C. P. Tiele*, Theol. D.; Litt. D. (Bonon.); Hon. M. R. A. S., etc., Professor of the History and Philosophy of Religion in the University of Leyden. In two volumes. Vol. II. Edinburgh and London: William Blackwood and Sons. 1899. Pages, vi, 286. Price, 7s. 6d.

This second volume of Prof. C. P. Tiele's *Elements of the Science of Religion* is one of the most important books written on the subject. It contains a philosophy of religion which reflects the mature opinion of a philosopher and at the same time gives an appreciation of man's religious attitude such as can be acquired only by personal experience.

All the most important problems of religion are touched upon, its essence (Chapter VIII), its constituents, i. e., its essential features (Chapter I), its origin (Chapter IX), its place in man's spiritual life (Chapter X) and its relation to philosophy (Chapter III). Special chapters are devoted to religious manifestations, worship, prayers and offering (VI), and to religion as an institution, i. e., the Church (VII), further to faith (VI), to the constant element in all conceptions of God (IV), and the relationship between God and man (V).

While we fully agree with the spirit in which Professor Tiele treats the subject and also in the main with his conclusions, we would in some places suggest other terms, which in our opinion would be more striking and comprehensive. Professor Tiele, for instance, regards piety as the abiding characteristic of all religion, considering the Dutch *vroom*, the German *fromm* and the Latin *pius* as practically of the same significance, which expresses "devotion, or consecration," because "it involves the idea of self-dedication and personal sacrifice." But the essence of piety according to Professor Tiele is adoration, and therefore he adds, "the essence of religion is adoration. . . . To adore is to love 'with all one's heart and soul and mind and strength.' To adore is to give oneself with all that one has and holds dearest." We cannot help thinking that this definition is not comprehensive enough and would exclude not only those lower religions which have not as yet a conception of a Deity that deserves adoration, but also the philosophical atheist who re-

jects adoration as unworthy of man. Is for instance Schopenhauer irreligious, or to take a still more flagrant example, is Nietzsche irreligious? In our conception Nietzsche's philosophy (considered purely in its results) is irreligious, as subverting the very basis of all religion, but the instinct that prompted him to write, to denounce morality, to preach the over-man, are decidedly of a religious nature. Yet there is no adoration, there is no self-sacrifice; there is, on the contrary, a bold self-assertion, which stands in a conscious opposition to devotion, to consecration, to self-sacrifice. We propose to replace Professor Tiele's definition of religion as "piety or adoration" by the broader term "conviction." Religion comprises the whole man; it is (as Professor Tiele recognises) emotional in its nature but it is an emotion of definite coloring, which it receives from its intellectual ingredients, consisting of a conception of the world, life's destiny, and duties, etc., etc. An opinion (be it scientific knowledge or mere belief, or a superstition) which ensouls a man as a sentiment prompting him to act in a definite way, is called conviction, and we shall find that conviction is the essential feature of all religions, true as well as false, barbarous as well as civilised, dogmatic as well as scientific or philosophical.

We trust that Professor Tiele would not be disinclined to such a substitution of definitions, for the detailed explanations in which he leads up to his results are the best evidence that he attacks the religious problems in the same spirit as we. What he says, for instance, concerning "the husk and the kernel" (pp. 182 ff.) in appreciating as well as criticising Professor Siebeck is very good and commendable; and so are his remarks regarding the various views concerning the origin of religion. Religion does not originate from morality, it is not a product of reasoning, it is not due to the ideal of perfection; nor is it the yearning of the finite for the infinite; and we expect Professor Tiele to add that religion is always from the most rudimentary beginnings and superstitious customs down to the most recent expressions of philosophers a passion for living up to one's deepest conviction; but Professor Tiele declares "The origin of religion consists in the fact that man has the Infinite within him even before he is himself conscious of it and whether he recognises it or not." Professor Tiele acknowledges that "the doctrine of conscience and sense of duty urgently requires revision," and we have attempted the task in *The Ethical Problem*.[1] We cannot enter here into the details of how conscience originates as a complexus of motor ideas, all of them being the composite traces of former impressions, inherited tendencies, instructions, experiences, etc.; but the result is a conviction which asserts itself not always in logical arguments but frequently with the impetuosity of an emotion. Man's conscience is the organ of our religious life, because conscience is conviction.

Professor Tiele finds that the root-idea in every conception of God-head is

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[1] See the chapters "The Growth of Conscience," pp. 119–124: "The 'Is' and the 'Ought,'" pp. 279–284; and "An Analysis of the Moral Ought," pp. 285–295.

power (p. 81), and deems it hardly necessary to add that "in order to stamp a superhuman power as a deity, it should be worthy of adoration."

"Men worship that only which they deem above them. Not the beast of prey, whose claws make them tremble, nor the bloodthirsty tyrant who persecutes them, but those beings alone whom they judge superior to man.

"The power of the evil spirits is indeed greater than their own, but not superhuman, although perhaps we may call it supersensual. The Zarathustrian erects no altars to Ahriman, nor does the mediæval Christian build chapels for Satan, however much they may dread these spirits. The Mohammedan casts stones at Iblis, and our Christian forefathers delighted in popular tales in which the devil was tricked or held up to derision. But to a power which he regards as superhuman man looks up with awe, and he speaks of it with reverence."

This distinction between good and evil powers that are more powerful than man is hardly sufficient, and yet we are inclined to endorse Tiele's view that power alone is sufficient as the characteristic feature of Divinity. But we must bear in mind that power is here used in a specific sense; it is not physical energy, but signifies that which will abide. We may call truth a power in this sense; and also right, justice, righteousness, love, good-will, and even such things as knowledge. The tiger, the tyrant, and other evils which may be conceived as demoniacal, are powers of another kind. They are strength that asserts itself in contradiction to the universal order of nature; they are temporary disturbances only which, when their day has passed away, will have the curse of condemnation imprinted on them. The sway of right and justice is more enduring than physical power; it is that which keeps man in agreement with the cosmic law of the interrelations of living beings.

God is the standard of right. God is not "moral" himself, morality does not apply to him. Individual beings only, God's creatures, are moral or immoral, according to their behavior. If they act in accord with the norm of truth and right they are moral; otherwise they are immoral, and it is this norm which we call God.

God represents the authority of the moral "ought." Thus it happens that the savage's god is as savage as are his ideas of morality. His immoral immolations are, closely judged, moral actions. Thus Professor Tiele is right when he says:

"It is not until a late period that the religiously disposed man strives to ex-
"press the superhuman character of his gods by ascribing to them ethical attri-
"butes. They become the vindicators of law, the rewarders of virtue, the punish-
"ers of vice."

This is simply the result of a finer perception of the moral law in the events of human experience. Man's view of the nature of his god or gods is always analogous to his conception of right and wrong, and we could therefore not accept Professor Tiele's opinion, that "the development of the ethical sentiment is a very different matter."

We need not enter into further details, but conclude with a few quotations

from the chapter "Philosophy and Religious Doctrine." Professor Tiele says: "Religion begins with conceptions awakened by emotions and experiences, and "these conceptions produce definite sentiments, which were already present in "germ in the first religious emotions, but which can only be aroused to consciousness by these conceptions; and these sentiments manifest themselves in actions. "But all this is spontaneous, and originally at least it was not the result of conscious reflexion. Reflexion comes on the scene at a later period, on a higher "stage of development, and consciously frames its creed or doctrine of faith."

As to the alleged conflict between philosophy and religion Professor Tiele says: "Their dissensions often arise from misunderstanding, from the confounding of a specific and temporary form of religion with religion itself. Philosophers "oppose religion because they are unable to distinguish it from the conceptions in "which it presents itself to them, or to comprehend that these conceptions are "merely an ephemeral garb; and they do not take the trouble to penetrate to the "ineradicable needs of the human soul which are revealed in these conceptions. "Theologians, laboring under a similar misconception, regard philosophy as an "enemy of religion, because it subjects to criticism the poetic and philosophic "forms, the myths and dogmas in which religion expresses itself, and do not perceive that it thus in reality conduces to the purification and the development of "religion. But the principal cause of these dissensions is a different one. It consists in the difference of development which often subsists between the two. Philosophy continues its researches without intermission. Religious doctrine, on "the other hand—and here I allude not to philosophic theologians and religious "thinkers, but solely to organised communities—remains stationary for long periods. For a long time elapses before the need of revision is felt. Whatever it has "appropriated from philosophy and science, its knowledge of nature and mankind "the physiology and psychology by which its conceptions are connected, all belong "to a period long since elapsed. In this respect, therefore, it lags behind philosophy. In so far as its garb is concerned, it stands upon an obsolete platform. "And, instead of trying to vindicate its position with great persistence, but always "unsuccessfully, and thus injuring rather than promoting religion, it would do "well to bring its conceptions aud arguments into harmony with the more accurate "knowledge and clearer insight attained in modern times. Nor in doing so would "it require to abandon a single jot of the essence of belief. Philosophy and religious doctrine must, therefore, ever continue in mutual intercourse. Philosophy "must not be content to criticise religion and faith, or perhaps to condemn them "on account of an obsolete doctrine which may happen once to have been officially "recognised in one communion or another, and accepted by the multitude without "much reflexion, but which has long since been modified by earnest seekers of "religious truth and brought into harmony with the demands of religious souls "and of general spiritual development. Religious doctrine, on the other hand,

"must not come into conflict with what has been ascertained and established in "other domains, whether moral, scientific, or philosophical."

From the bottom of our heart we say, Amen! These sentences from one of the most prominent theologians of to-day express exactly the position which we have taken in both magazines, *The Open Court* and *The Monist*, and which we have defended and advanced in all our publications. Whatever disagreements we may have with Professor Tiele in definitions or in the formulation of laws such as determine the development of religion, we know ourselves to be in full sympathy with him concerning the maxims of treating religion, and take the same attitude as to the fundamental principle of theology as a science. P. C.

TRAITÉ ÉLÉMENTAIRE DE MÉCANIQUE CHIMIQUE, FONDÉE SUR LA THERMODYNAMIQUE. By *P. Duhem*, Professor of Theoretical Physics in the Faculty of Sciences at Bordeaux. Tome III. Les mélanges homogènes; les dissolutions. Large octavo. Paris: A. Hermann. 1898. 380 pages.

Physical chemistry, or at least the mathematical theory of the subject, is known in France as "chemical mechanics." In the present large work by Duhem, it is treated as a branch of thermodynamics, or, rather, as a branch of the general energy theory. The object of the energy theory is to describe the mutual transformations of work and the work-equivalents of effects that are producible by the expenditure of work. Its adequateness to this end makes it the most serviceable method we have for the study of physical chemistry; for chemical phenomena, in their physical aspect, may be regarded as interchanges of work and thermal, electric, and chemical work-equivalents.

A very complete description, in particular, of the more or less complicated states of equilibrium to which chemical changes lead, is supplied by the energy theory. For, a fundamental theorem of the theory assigns the direction in which spontaneous processes proceed under given conditions; and herefrom it is possible to deduct at once the characteristics of the resulting states of equilibrium. The development of the thermodynamic theory of chemical equilibrium is due, in the main, to our countryman J. Willard Gibbs. The labors of Duhem have served to amplify it, and to develop some of its more remote consequences.

In arranging his material, Duhem follows, roughly, the historical order. He presents first the fundamental principles of thermodynamics; then the thermodynamic behavior of single substances, i. e., the phenomena of vaporisation, fusion, the transformation of allotropic forms, and the continuity of liquid and acriform states; and, finally, in the present third volume, the newer theory of the physical behavior of solutions. A fourth volume, yet to appear, is to complete the whole.

This book of Duhem is the first serious attempt that has been made to produce a comprehensive treatise on mathematical chemistry. It is fortunate that the task has been undertaken by so competent a man. And it is a great convenience to the

specialist to have assembled here, in well-rounded form, the results of the many voluminous memoirs that Duhem has published during the past dozen years.

The book, on the whole, has been carefully written. It gives a good general view of its subject; many of its features are new, both in form and in matter; and it gives everywhere evidence of great erudition. One serious objection only is to be made to it: its style is diffuse. The whole thing might have been written in fewer words, and with fewer equations. J. E. TREVOR.

LEÇONS DE CHIMIE PHYSIQUE, PROFESSÉES A L'UNIVERSITÉ DE BERLIN. By *J. H. van't Hoff*. Translated from the German by M. Corvisy. Première partie: La Dynamique chimique. Paris: A. Hermann. 1898.

Two very important treatises on physical chemistry are now appearing in parts. One of these is Ostwald's enormous *Lehrbuch*, the other is van't Hoff's *Lectures on Theoretical and Physical Chemistry*. Both are written in German; but in the present volume we have a French translation of the First Part of van't Hoff's book. These two authors being, probably, the best known teachers and investigators in physical chemistry, comprehensive works by them on the subject have an unusual interest.

Van't Hoff's book presents substantially its author's lectures at the University of Berlin, but expanded somewhat beyond their original limits. Its subject-matter is assembled in three parts, under the heads, "chemical dynamics," "chemical statics," and "composition and properties of matter." The present first part, on chemical dynamics, treats of "the mutual actions of bodies, chemical transformation, affinity, the velocities of reactions, and chemical equilibria," thus comprising the greater part of what is commonly understood as physical chemistry. The two remaining parts will almost necessarily contain a lot of incoherent details, and a collection of the hypothetical lumber of the subject—"the constitution of matter atoms, molecules, and the structure and configuration of molecules."

In presenting each topic, van't Hoff begins with an experimental study of a concrete example, usually one that has been investigated in his own laboratory; then represents graphically the results that are obtained; and, finally, draws his general conclusion and elaborates its theoretical development. This natural method, together with the clearness with which the book is written, are certain to make it what its author intended it to be: "An aid to those who wish to assimilate the recent achievements of physical chemistry." J. E. TREVOR.

CALCUL DE GÉNÉRALISATION. By *G. Oltramare*, Doyen de la Faculté des Sciences de l'Université de Genève. Paris: Librairie Scientifique. A. Hermann, rue de la Sorbonne 8. 1899. Pages, 191.

The present work is one belonging to higher analysis, and will claim the attention of advanced mathematicians and logicians only. *The Calculus of Generalisation*, which is the name that Dr. Oltramare has given to his science, is con-

cerned with the representation of uniform functions under a symbolical form such that the principal operations to which functions may be subjected, as differentiation and integration, can be effected by means of a simple algebraical analysis which is very easily manipulated. He claims for his Calculus the establishment of general formulæ for the determination of definite integrals, of which Cauchy has given several examples; the establishment of formulæ for the transformation of series into definite integrals; its easy application to the integration of equations; and so forth, and so forth. The author contends that his methods bear the same relation to higher analysis that logarithms do to arithmetical computation, diminishing in many cases the difficulties of differentiation and integration. And he further believes that his discipline ought to find an important place in the curriculum of higher mathematical study. *μ.*

KANT UND HELMHOLTZ. Populärwissenschaftliche Studie. Von *Ludwig Goldschmidt, Ph. D.*, Mathematischem Revisor der Lebensversicherungsbank für Deutschland in Gotha. Hamburg und Leipzig: Verlag von Leopold Voss. 1898. Pages, xvi+135. Price, 5 M.

Students of epistemology will find this booklet of Dr. Goldschmidt to be one well worth perusal. Though making no pretence to being more than a popular discussion, it has many solid merits. Dr. Goldschmidt is consulting actuary of the National Life Assurance Association of Germany, in Gotha, is an enthusiastic Kantian, and remarkably well versed in the literature of the Kantian epoch. He upholds the Kantian theory of space against the attacks of the modern metageometricians, impugns the theory that the axioms of geometry are empirical in character, and adopts the Kantian theory of *a priori* judgments in its entirety. With all his great admiration for Gauss, Riemann, and Helmholtz, he yet claims that their achievements must be subjected to the analytical tests which the Sage of Königsberg established for all knowledge.

The mere suggestion of a parallel between Kant and Helmholtz brings with it the most varied philosophical implications; and the applicability of the parallel to the problems now engaging attention in the theory of knowledge is directly evident. *μ.*

PSYCHOPHYSIOLOGISCHE ERKENNTNISTHEORIE. Von *Dr. Theodor Ziehen*, Professor in Jena. Jena: Gustav Fischer. 1898. Pages, 105. Price, M. 2.80.

It is no easy task to follow Professor Ziehen through the labyrinth of his arguments let alone to condense the results of his epistemological investigations. It is difficult to argue with a man to whom the terms "psychical," "conscious," and "real" or "actually existing" are identical and in whose philosophy "extra-psychical non-psychical objects have no existence." Professor Ziehen reduces sensations and perceptions to two components, "the reduction-ingredient" so called, and "the ν component," the latter being a learned name for the epistemological

part which the sentient subject plays, consisting of the physiological factors from the sensory apparatus to the cortex of the brain. No exception need be taken to many stilted propositions which might easily be reduced to very simple truisms, except on the ground that they will mystify unsophisticated readers. The book is the attempt of a psychologist to free himself from metaphysicism; he seems to have succeeded only to the degree of having relabelled the old and naïve conceptions of natural laws as relations of psychical components and has after all fallen a prey to agnosticism, for Ziehen declares that the ultimate ego [whatever that may mean] lies without the pale of cognition.[1] We grant that students may be benefited by the mental gymnastics of this book, nor do we deny that many perplexing propositions turn out to be quite acceptable when the author's definitions are carefully heeded, but we believe that directer methods would have led to clearer results and several problems would be recognised as much simpler than they appear through the spectacles of a learned professor. Instead of trying to get rid of metaphysics, the time seems to be ripe for us to bethink ourselves of its true and proper significance. κρς.

EXPERIMENTAL MORPHOLOGY. Part Second. Effect of Chemical and Physical Agents upon Growth. By *Charles Benedict Davenport, Ph. D.*, Instructor in Zoölogy in Harvard University. New York: The Macmillan Company. London: Macmillan & Co., Ltd. 1899. Pages, vi+228. Price, $2.00.

The *Experimental Morphology* of Dr. Charles Benedict Davenport is concerned with the development of the individual "regarded as a complexus of processes rather than a mere succession of different forms"; that is to say, it is concerned with *organic* growth as distinguished from *evolutionary* growth, or differentiation. The central idea of the work is that ontogeny is a series of reactions to chemical and physical agents. It is essentially a digest of the published observations which have been made on this subject, but gives special attention to the results and methods of those investigations which have a quantitative value. The first part dealt with the effect of chemical and physical agents upon *protoplasm*, discussing (1) protoplasmic movements, (2) growth, (3) cell-division, and (4) differentiation. The present, or second, part deals with the effect of chemical and physical agents upon *growth*. The student will find the work to be a complete *index raissoné* of the subject, giving not only the literature but a systematic and critical exposition of the main upshot of that literature. The present part is divided into ten chapters, entitled as follows: (1) Introduction: On Normal Growth; (2) Effect of Chemical Agents Upon Growth; (3) The Effect of Water Upon Growth; (4) Effect of the Density of the Medium Upon Growth; (5) Effect of Molar Agents Upon Growth; (6) Effect of Gravity Upon Growth; (7) Effect of Electricity Upon Growth; (8) Effect of Light Upon Growth; (9) Effect of Heat on Growth; and

[1] The passage runs as follows, "das letzte Ich, welches als beharrende höchste Instanz das definitive Erkennen leisten könnte, erreichen wir nicht."

(10) Effect of Complex Agents Upon Growth, and General Conclusions. The index is complete, and the general arrangement of the work admirable in every detail. Despite its enormous practical importance, the theory and systematic study of growth have been generally neglected by the text-books, and in view of this fact the author believes that he has supplied a real want in the literature of biology and of biological economics. He has not neglected the theoretical side, and has especially pointed out the direction in which new and fruitful investigations are to be pursued. Altogether the work is one which will claim the interest even of the general student. μ.

ABHANDLUNGEN DER KAISERLICHEN LEOPOLDINISCH-CAROLINISCHEN DEUTSCHEN AKADEMIE DER NATURFORSCHER. 70. Band. Mit 21 Tafeln. 71. Band. Mit 8 Tafeln. Halle, 1898. Buchdruckerei von Ehrhardt Karras in Halle a. S. Für die Akademie in Commission bei W. Engelmann in Leipzig.

Printed in large folio and averaging 400 pages each, these volumes constitute a really monumental piece of typography, and not too much praise can be bestowed upon the lavish and elegant manner in which they have been illustrated. The monograph of Dr. Frobenius, in the 70th volume, on the figureheads of boats of the Kamerun natives, and that of Dr. Zopf, on the diseases produced by parasitic fungi in lichens, are accompanied by as fine specimens of colored heliograph printing as we have ever seen, and a like commendation is due to the plates of the geometrical monographs on the history of trigonometry, by Braunmühl, in the 71st volume. We append a list of the contents of the two volumes. They consist of solid and original contributions by men of the first rank in the scientific world, and certainly deserve a place in the large libraries of the world.

Contents of Volume 70: (I.) L. Frobenius. Der Kameruner Schiffsschnabel und seine Motive; (II.) W. Zopf. Untersuchungen über die durch parasitische Pilze hervorgerufenen Krankheiten der Flechten (Erste Abhandlung); (III.) H. Hallier. Indonesische Acanthaceen; (IV.) W. Zopf. Untersuchungen über die durch parasitische Pilze hervorgerufenen Krankheiten der Flechten (Fortsetzung); (V.) C. Grevé. Die geographische Verbreitung der jetzt lebenden Perissodactyla Lamnungia und Artiodactyla non ruminantia.

Contents of Volume 71: (I.) A. v. Braunmühl. Beiträge zur Geschichte der Trigonometrie; (II.) A. v. Braunmühl. Nassîr Eddîn Tûsi und Regiomontan; (III.) W. M. Kutta. Zur Geschichte der Geometrie mit constanter Zirkelöffnung; (IV.) L. Satke. Ueber den Zusammenhang der Temperatur aufeinander folgender Monate und Jahreszeiten; (V.) F. Schilling. Geometrisch-analytische Theorie der symmetrischen S-Functionen mit einem einfachen Nebenpunkt; (VI.) E. Schröder. Ueber zwei Definitionen der Endlichkeit und H. Cantor'sche Sätze; (VII.) E. Schröder. Die selbständige Definition der Mächtigkeiten 0, 1, 2, 3 und die explizite Gleichzahligkeitsbedingung; (VIII.) A. Löwy. Ueber bilineare Formen mit konjugirt imaginären Variabeln; (IX.) E. Hammer. Vergleichung einiger

Abbildungen eines kleinen Stücks der ellipsoidischen Erdoberfläche (Karte von S.-W.-Deutschland). μ.

MONOGRAPH SUPPLEMENTS OF THE PSYCHOLOGICAL REVIEW:

Vol. II., No. 4, Animal Intelligence. An Experimental Study of the Associative Processes in Animals. By *Edward L. Thorndike, A. M.*, University Fellow in Psychology, Columbia University. The Macmillan Co., New York and London. 1898. Pages, 109. Price, $1.00.

Vol. II., No. 5, The Emotion of Joy. By *George Van Ness Dearborn, A.M., M. D.*, Sometime Assistant in Philosophy in Harvard University. The Macmillan Company, New York and London. 1899. Pages, 70. Price, 75 cents.

These two brochures are the latest additions to the series of "Monograph Supplements" published by the *Psychological Review*. The first is an experimental study of the associative processes in the minds of animals, and according to the author's claim "is the beginning of an exact estimate of just what associations, "simple and compound, an animal can form, how quickly he forms them, and how "long he retains them. It has described the method of formation, and, on the "condition that our subjects were representative, has rejected reason, comparison "or inference, perception of similarity, and imitation. It has denied the existence "in animal consciousness of any important stock of free ideas or impulses, and so "has denied that animal association is homologous with the association of human "psychology."

The second monograph was submitted in partial fulfilment of the requirements for a degree of doctor of philosophy in Columbia University. It seeks "to outline "a description of the Emotion of Joy in both its aspects, psychical and physical; "to set forth what the emotion 'feels like,' and to point out the chief concomitant "bodily movements, strains and postures, and to explain, as far as may be, by "what biological principles these are what they are seen to be." μ.

PSYCHOLOGISCHE UNTERSUCHUNGEN ÜBER DAS LESEN. Auf Experimenteller Grundlage. By *Benno Erdmann* and *Raymond Dodge*. Halle a. S.: Max Niemeyer. 1898. Pages, viii, 360. Price, 12 M.

The present exhaustive psychological study of reading on experimental bases is the result of the collaboration of a young American investigator, Dr. Raymond Dodge, and his teacher, Prof. Benno Erdmann, formerly of Halle and now of Bonn. It is the outcome of experimental researches conducted in 1894–1895, in Halle, by Professor Erdmann, who then gave utterance to the desire of having a special apparatus devised for the investigation in question. This want was supplied by Dr. Dodge, by whom the succeeding experiments were carried out with great mechanical skill. In the broad compass of 360 pages the authors review all the previous investigations on the subject, and then pursue their own experiments

and researches with respect to every special aspect of that enormously complicated physiological, psychical, and intellectual process which goes by the name of "reading." *µ.*

KOMIK UND HUMOR. EINE PSYCHOLOGISCH-ÄSTHETISCHE UNTERSUCHUNG. By *Theodor Lipps*. Hamburg and Leipzig: Verlag von Leopold Voss. 1898. Pages, viii, 264. Price, 6 M.

The basis of the present work was a series of essays which Professor Lipps wrote some years ago in the *Philosophische Monatshefte* on the psychology of humor. The author has laid greatest stress on the psychological side of his subject, and left the artistic and historical aspects to the specialists of other departments. There are eighteen chapters. The author enters very thoroughly into the literature of his predecessors, Hecker, Groos, Kräpelin, Wundt, Huymans, Lazarus, Vischer, Mélinaud, Herckenrath, and others. In the second part of his book, he enters upon a thorough-going analysis of the subject-matter of his inquiry, and reaches the conclusion that the feeling of the comical arises when some percept image, or idea makes, or appears to make, pretensions to grandeur, and at the same time fails to make this pretension, or appears to be unable to make it. The author distinguishes three principal species: first, all things, persons, or events, are *objectively comical*, with respect to which we experience the contrast between what is grand, important, or impressive, and what is relatively small, insignificant, or trivial. Secondly, only the activity of a person is *subjectively comical*, or witty. Wit is an expression of the human personality; men *make* jokes. Thirdly, the *naïvely comical* is both objective and subjective at once. It always involves the contrast of two points of view—that of the person criticising and that of the naïvely comical person criticised. The predecessors of Lipps had emphasised the contrast of the positive and negative aspects which is inherent in all humor, but Lipps has gone into this question more thoroughly from the psychological point of view and more precisely studied its character and delimitations. *µ.*

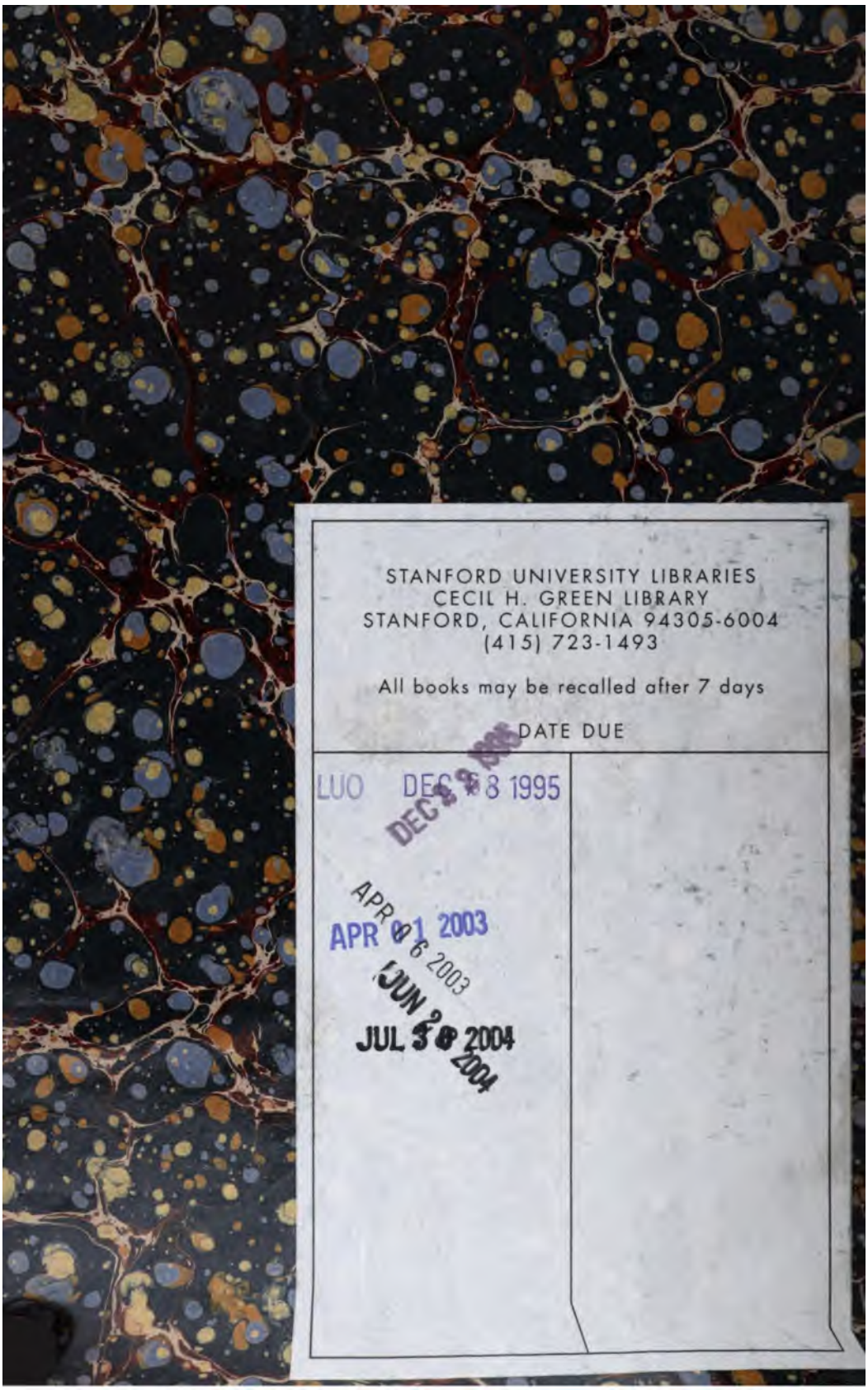
VERSUCH EINER DARSTELLUNG DER EMPFINDUNGEN. By *Walter Przibram*. Vienna: Alfred Hölder. 1898. Pages, 28. Price, 1.40.

Mr. Przibram died before the publication of his work, and the task of its editorship was left to his brother, Mr. Hans Przibram. This little book was conceived by the author as an attempt to prepare the way for a rigorous mathematical treatment of pure psychology. It treats of the sensations as immediately given; that is to say, as purely psychological and neither as psycho-physical nor as physiological facts; and endeavors to marshal these facts into a mathematical system of formulæ which will furnish a complete description of the single sensations, and shall admit of discussion for special cases. The sensations are represented in arithmetical formulæ as "sects" (*Strecken*), or limited portions of straight lines (the formula being mi^n), where the threshold of consciousness is the origin of the sect,

the quality of the sensation the direction, i^n, and the intensity of the sensation the magnitude, m. The simple elementary constituents of sensations are represented by the directions of the coördinates of the rectangular coördinate system, or the dimensions of space; every two contrary constituents finding their natural place in the contrary directions of the coördinates in the same dimension. As in the notation for the radii of circles, imaginary expressions are used, and by appropriate extensions the system made applicable to constructions of as many dimensions as are necessary. A simple constituent of sensation is representable as a direction of a dimension $\sqrt{(i_n)^2}$, and every kind of ratio and proportion of combination of the simple constituents of sensations may be expressed by the corresponding combination of the coördinates, or the dimensions. Considering the very simple case of two dimensions, the author reaches, as the general expression for a mixed sensation, a rather complicated formula involving all the elements above mentioned, and in addition thereto certain circular functions. μ.

DIE BEGRIFFE PHÄNOMENON UND NOUMENON IN IHREM VERHÄLTNISS ZU EINANDER BEI KANT. Ein Beitrag zur Auslegung und Kritik der Transcendentalphilosophie. By *George Dawes Hicks, M. A., Dr. Phil.* Leipzig: Wilhelm Engelmann. 1897. Pages, 276. Price, 5 M.

In this pamphlet Dr. Hicks has expounded and subjected to critical scrutiny one of the fundamental problems of Kant's philosophy, viz., the interrelations of the concepts of "phenomenon" and "noumenon." As a piece of preliminary work the author has discussed the concept of "phenomenon" in the philosophies of Locke and Leibnitz, and in the six following chapters he discusses the subject proper of his book in connexion with Kant's own development. Upon the whole the investigation is comprehensive, the chapter to which we have taken the most objection on the score of critical deficiency being Chapter V., "On the Considerations which Lead From the Phenomenon to the Noumenon." μ.



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